THE ISLE OF PINES, CUBA:
A GEOGRAPHIC INTERPRETATION

By
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CHAPTER I

INTRODUCTION

The Isle of Pines is a large island (1181 square miles) lying thirty miles off the southwestern coast of Cuba. Although it is the sixth largest island in the Caribbean, in 1957 it had a population of only 11,000 people, of which nearly 2,000 were prisoners interned in a government penitentiary on the island. The number of inhabitants is extremely small when compared to virtually every island in the Caribbean. Barbados, with an area barely one-tenth the size of the Isle of Pines, has a population of over 200,000 and a density of 1260 people per square mile. Numerous other examples might be cited where abnormally large numbers of people are concentrated on small Caribbean islands; even when compared to Cuba, the island stands out as sparsely populated, in marked contrast to densely populated municipios nearby in Havana and Pinar del Rio Provinces.

The sparsity of population on this island, concomitant with its large area, makes it unique in a region of the world where attention is being focused on the problems associated with the pressure of population on resources. In order to understand the Isle of Pines an attempt has been made to ascertain the reasons for its sparse population and slow economic development in contrast to other areas of Cuba as well as to the rest of the Caribbean islands.

The approach to this study has been basically exploratory, but

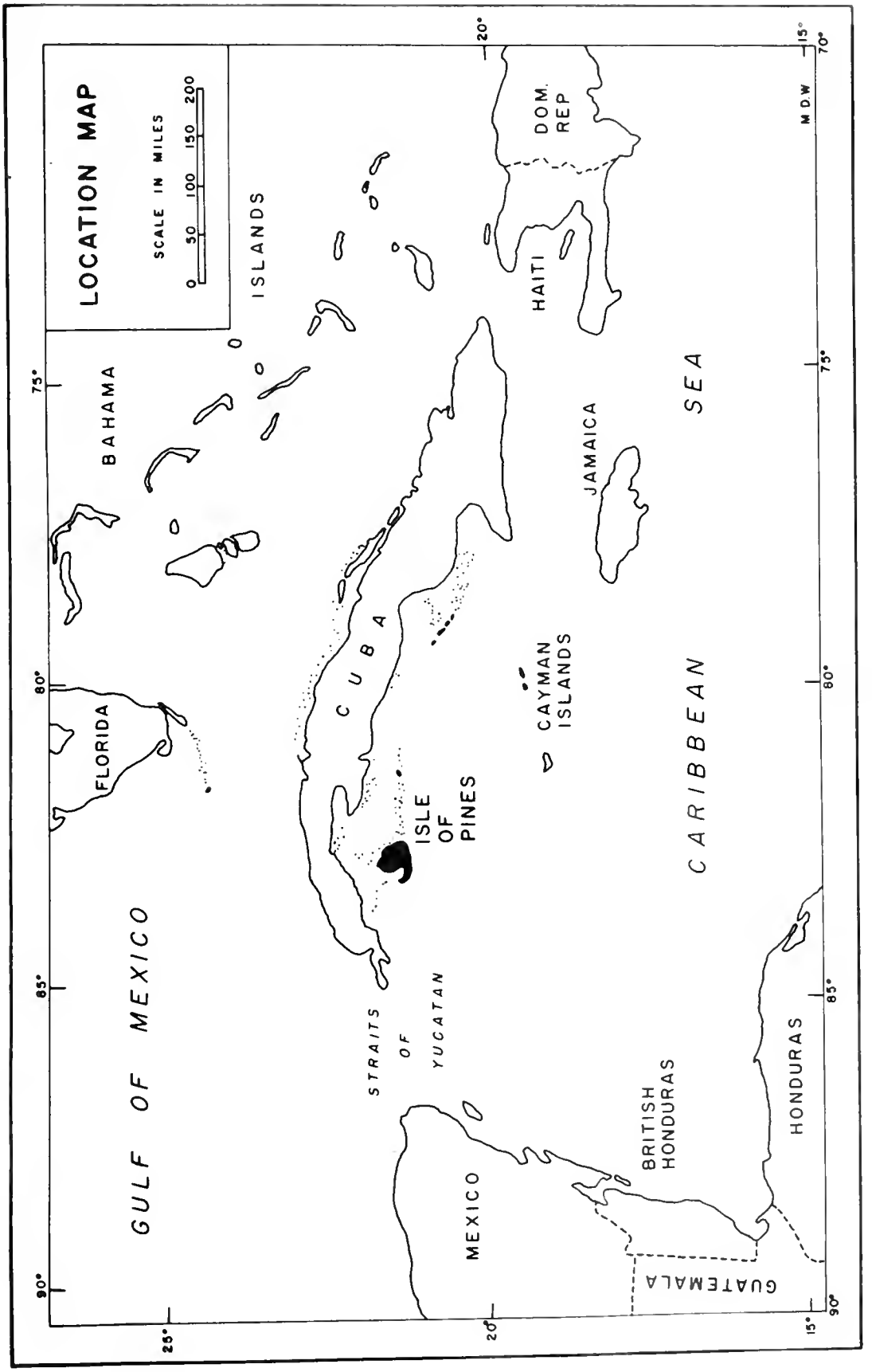

LOCATION MAP
SCALE IN MILES
0 50 100 150 200
BAHAMA ISLANDS
FLORIDA
GULF OF MEXICO
CUBA
ISLE OF PINES
CAYMAN ISLANDS
JAMAICA
HAITI
DOM. REP
CARIBBEAN SEA
STRAITS OF YUCATAN
MEXICO
BRITISH HONDURAS
GUATEMALA
HONDURAS
MDW
90°
85°
80°
75°
70°
25°
20°
15°

Fig. 1

in the process of evaluating the contemporary economic situation certain courses of remedial action have been suggested which might alleviate present economic problems. The physical, economic, and cultural conditions on the island have been investigated, and historical factors are discussed at length in order to better interpret the modern cultural landscape.

CHAPTER II

THE PHYSICAL ENVIRONMENT

The Landscape

The Isle of Pines has a low and flat terrain interrupted by residual hills that rise abruptly from the plain to altitudes as high as one thousand feet above sea level. Essentually there are six physiographic regions present on the island: (1) a low coastal plain which borders most of the shore north of the Lanier Swamp, (2) a higher interior plain, (3) a series of residual, schistose hills that rise from the interior plain, (4) two ranges of residual marble mountains in proximity to each other that rise from the same plain, (5) a swamp that nearly bisects the island in an east-west direction, and (6) a low, wide plain south of this swamp composed of coral limestone.

The low coastal plain that borders the major portion of the island north of Lanier Swamp varies in width from one to four miles. The three basic elements that form the coastal plain are generally a narrow sandy beach at the shore, a dense mangrove swamp behind the beach, and a low alluvial plain beyond the swamp. Only in two places is the plain broken; both are near the town of Nueva Gerona. Two residual marble hills stand out above the coastal plain and have deeply incised terraces at their bases.

The narrow strip of siliceous sand which forms the outer or

shoreward border of the coastal plain was formed by the deposition of sand eroded off the interior plain and reworked by wave and tidal action. Seldom does this beach extend more than a few yards landward.

Behind the sandy beach lies the dense mangrove swamp. This swamp usually is about one hundred yards wide, though in places it reaches a width of as much as two miles. The island is growing at the expense of the sea, for this mangrove swamp is gradually being pushed seaward, a situation made possible by siltation off the island's interior plain into the sea. Piers which formerly reached beyond the swamp into open water have, over the years, been completely surrounded by the mangrove trees. Other piers have had to be extended in order that they might retain their position in navigable water.

Landward, behind the mangrove swamps, the coastal plain continues as a low alluvial plain. This plain is so low and flat that after a heavy rain its surface frequently becomes inundated, several hours elapsing before the rain water is able to soak into the earth or drain off. The width of this plain generally is not more than a mile, but in places on the northwestern side of the island it reaches over two miles into the interior beyond the mangrove swamps. There is no clearly defined border between the coastal plain and the interior plain. A transition zone occurs at approximately fifty feet above sea level where the coastal alluvial soils grade into the residual soils of the interior.

The interior plain is the most extensive landform region on the island, covering most of the middle part of the island north of

Lanier Swamp. The plain is generally rolling and ranges from 50 to 250 feet above sea level. Greatest relative relief occurs in the area surrounding the residual hills. Here, where the island's major streams originate, an intensive dendritic stream pattern has developed. Because of the intensity of the stream pattern the interfluves within this zone are sharp, and the local relief is pronounced. Toward the outer perimeter of the island the edge of the interior plain becomes flattish with the low elevation and the broadness of the interfluves.

The schistose hill zone rising in the center of the interior plain is composed of one large group of hills and several isolated hills a few miles distant from the main body. The Sierra de la Canada, Cerros del Monte, and Cerros de la Ceiba are the three ranges of hills which make up the large region. Together they form a chain fifteen miles in length running on a northwest-southeast bias. Cerros de San Juan, Loma Siguanea, and Loma Aguila are the isolated hills that are separated from the main region.

The average elevation of the central hills is not great. Seldom do they exceed a height of five hundred feet or have precipitous slopes. The exception to this is in the Canada range. Here occasional elevations of one thousand feet are reached, and the slopes of the hills are often steep. The highest point of land on the island is found within this range, 1,017 feet above sea level.

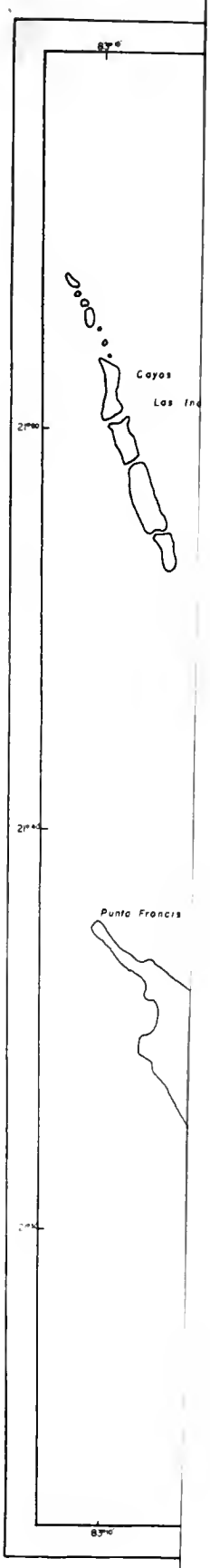
The two marble ranges located on either side of Nueva Gerona have been included together as one landform region, as they lie in such proximity to each other. These ranges, the Sierra de Casas to the west of the town, and the Sierra de Caballos to the east, are

true monadnocks; they rise abruptly from the interior plain and in many ways appear similar to the famous residual limestone mogote hills found in the provice of Pinar del Rio. In places these hills attain a height of one thousand feet. To the casual visitor who arrives at Nueva Gerona the imposing shape of the two ranges often conveys the erroneous conception that the island is mountainous.

The fifth physiographic region is Lanier Swamp, which nearly bisects the island in an east-west direction. The swamp varies in width from one-half mile to almost four miles. Although many maps have been published showing this swamp as completely crossing the island, it is actually broken in approximately the middle by a narrow strip of the limestone plain which lies to the south. During the winter, when the ground water level drops, this pass is dry and it is possible to cross the swamp with little difficulty. In summer, especially when the rainfall is heavy, the low limestone bridge becomes inundated and land travel is impossible.

Physically, Lanier Swamp and the mangrove swamp that borders the northern part of the island are similar. As Lanier Swamp reaches the sea on the eastern side of the island it simply joins the coastal swamp without any clearly defined boundary. On the western side, near Loma Siguanea, a very small strip of the alluvial coastal plain reaches the sea, separating Lanier Swamp from the coastal swamp.

In many ways Lanier Swamp can be thought of as a span linking two separate islands, because the physiography of the southern plain differs so much from the two northern plains. The southern plain is


Cayos
Punta Francis

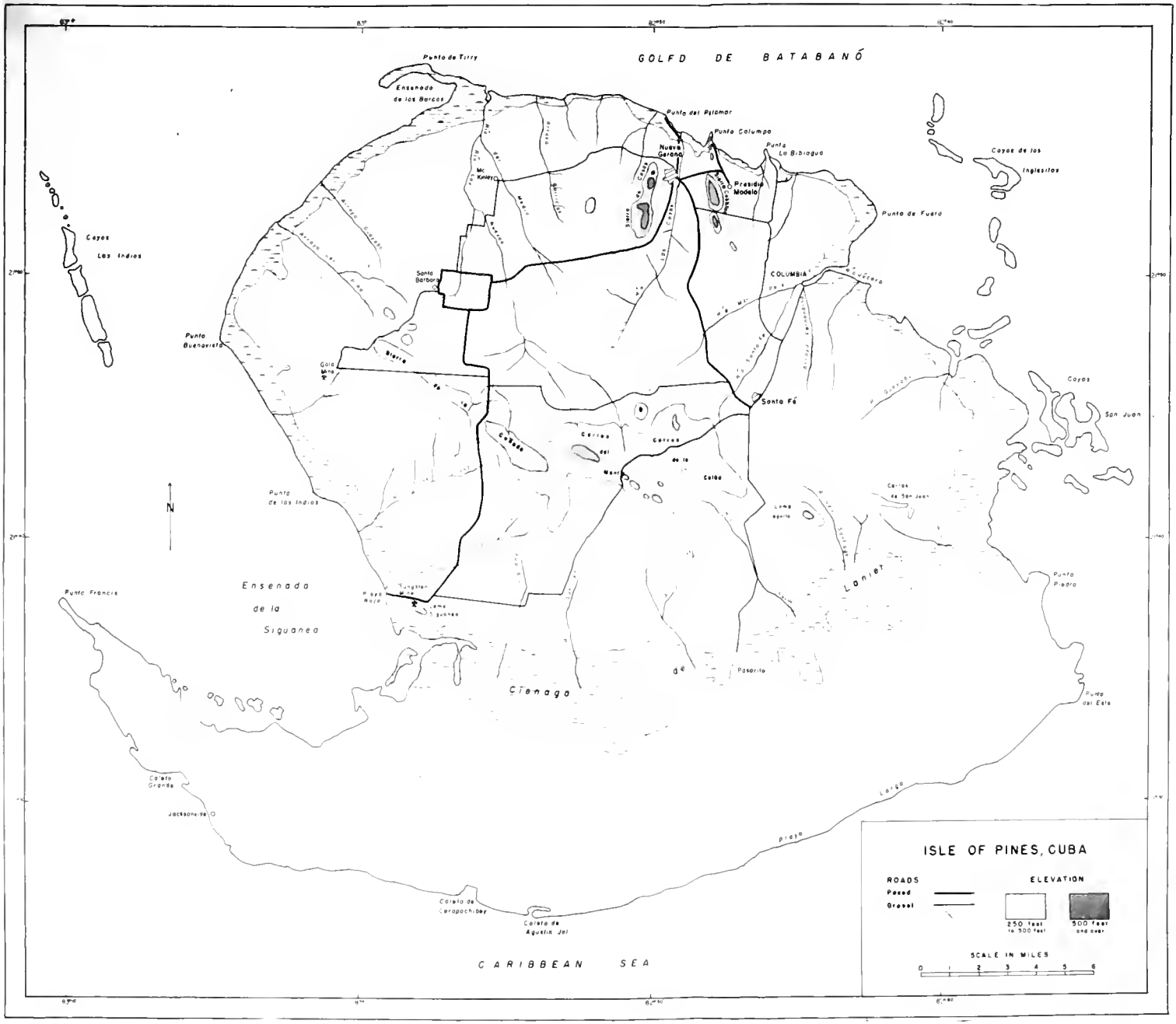

GOLFO DE BATABANÓ
Punto de Tirry
Ensenada de los Barcos
Punto del Palomar
Punto Columpo
Punta La Bibagua
Nueva Gerona
Presidio Modelo
Mc Kinley
Cayos de los Inglesitos
Punto de Fuera
Cayos Las Indias
Santa Barbara
COLUMBIA
Punto Buenavista
Gold Mine
Santa Fé
Cayos San Juan
Punta de los Indios
Ensenada de la Siguanea
Punta Francis
Punta Piedra
Punta del Este
Ciénaga de Pasarito
Caleta Grande
Jacksons-town
Caleta de Carapachibey
Caleta de Agustin Jol
CARIBBEAN SEA
ISLE OF PINES, CUBA
ROADS
Paved
Gravel
ELEVATION
250 feet to 500 feet
500 feet and over
SCALE IN MILES
0 1 2 3 4 5 6

Fig. 2

composed of limestone. Although its maximum relief is slight, in detail it is quite rough. A large number of solution features such as sinkholes and sharp pinnacles cover the region, and locally the topography has acquired the name diente de perro (dog's teeth). Since the plain has a harsh topography there are no surface streams or any visible pattern of surface drainage. It may be assumed that underground drainage prevails.

The Structure

Essentially the major portion of the island, that is, its inner core, was formed under the tectonic pressures of a large magmatic intrusion which forced the overhead sedimentary layers up. This intrusion is believed to have occurred during the Cenozoic Era, at the close of the Oligocene Period.[1] The dome which was created by the upthrust, composed of highly matamorphosed schists and marbles, was oblong in shape, with a northeast-southwest strike, the northeastern terminus being submerged under the Gulf of Batabano.

The height of the monadnocks and residual hills on the island suggest that there is a double concordance of elevatinns. One concordance is at approximately one thousand feet. The marble ranges in the north and the higher hills of the interior schistose ranges to the south all have summits that are between nine hundred and one thousand feet. The other concordance is between five hundred and six hundred feet. This is the general altitude of virtually all of

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[1] J. Whitney Lewis, "The Geology of Cuba," Bulletin of the American Association of Petroleum Geologists (June, 1932), Vol. 16, No. 6. p. 548.

the lower elevations within the ranges and of several isolated hills.

This double concordance implies that the tectonic upthrust which forced the sedimentary layers up was intermittent, the island being stable for long enough periods of time to allow at least two cycles of peneplanation before the present one. Today the peneplain, which has an elevation varying between 50 and 250 feet above sea level, appears to be undergoing a third rejuvenation. The highly developed dendritic pattern of the streams, especially those in the center of the island and the fact that they have become entrenched to depths of from five to fifty feet with extremely steep banks, lends weight to this supposition.

Two rock formations are found at the surface of the interior plain--Mal Pais (bad land) gravels and Santa Fe schists. Mal Pais gravel is the most extensive formation and can be found virtually everywhere on the peneplain, only varying in its surface concentration. Pebbles are usually made up of quartz, the residuum of the decomposed schist rock. Frequently the pebbles are stained a deep red by iron and manganese, and it is common to find them cemented together by iron into a ferruginous conglomerate. The depth of the Mal Pais formation usually averages only a few feet, with a maximum of as much as twelve feet in places. The Santa Fe schists rarely appear at the surface of the interior plain, although the basement rock of the entire region is composed of them. Only occasionally may an outcropping of schist rock be seen, usually in the bed of one of the more deeply entrenched streams.

The interior hill zone makes up the largest outcropping of

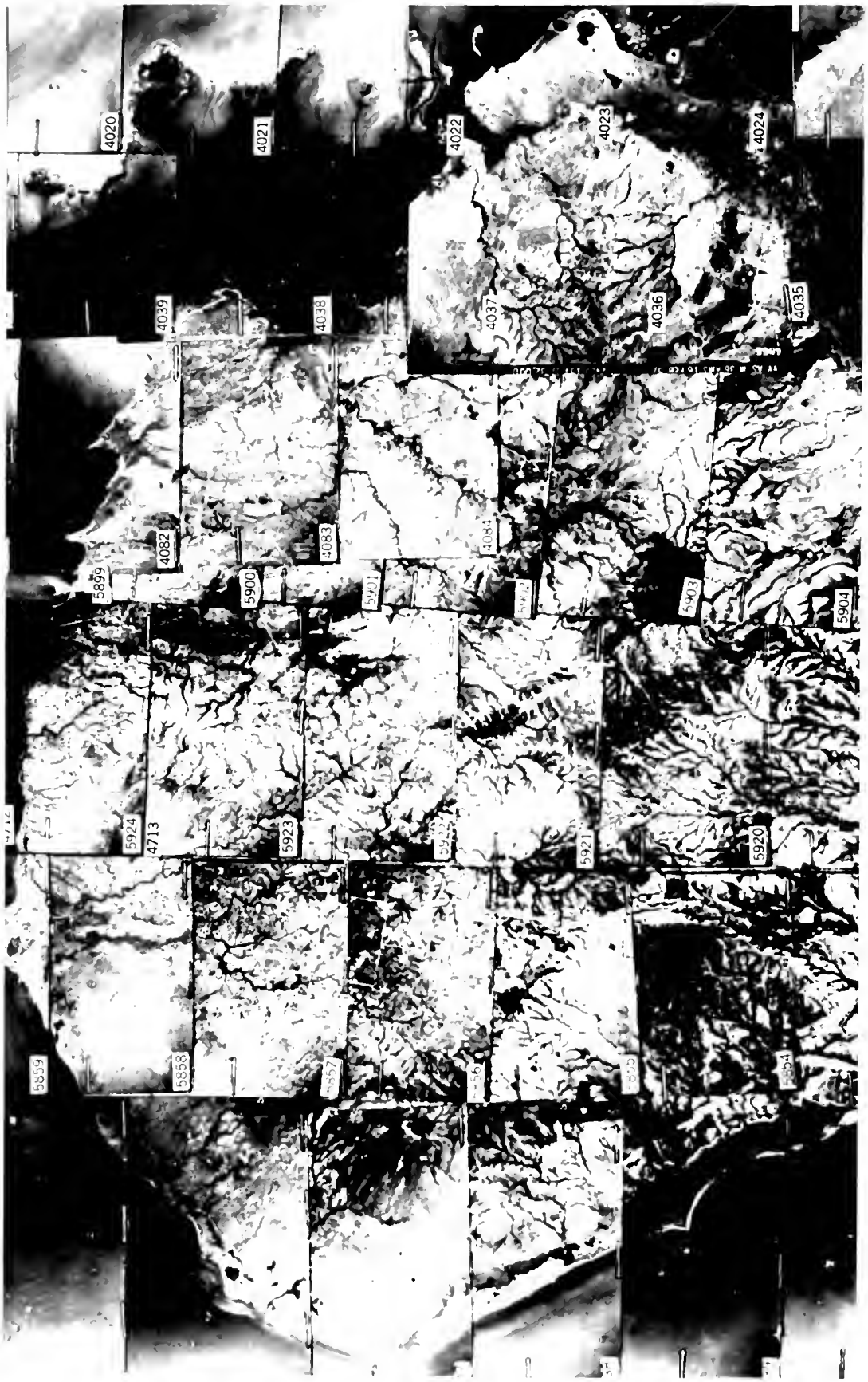

Fig. 3.--Aerial Photo of the Island North of Lanier Swamp

Santa Fe schists. These schists have a higher concentration of siliceous material than the schists that underly the plain. Due to this fact they have been more resistant to subaereal erosion and today stand, in places, over one thousand feet above it.

The two parallel marble ranges near Nueva Gerona are monoclinal ridges with a north-south strike, having an easterly dip of approximately thirty degrees. The thickness of these beds is estimated to be two thousand feet.

The zone of the alluvial plain which is composed of alluvium owes its origin to silt washed from the interior peneplain. This alluvium is composed of quartz sands that are generally gray in color. In restricted areas along the coast red and black sand beaches may also be found. The red sand beach, Playa Roja, near Los Indios was formed by depositions of highly decomposed hornblende schist. Playa Bibiagua, located near Nueva Gerona, is a beach of black colored sand that has originated from the imperfect decomposition of the horneblende schist.

During the Pleistocene Era Lanier Swamp probably was a coastal swamp that formed the southern shoreline of the island. At that time more than ten miles of shallow water separated the southern shore from the edge of the Cuban Platform, where the deep Yucatan Basin begins. This shallow water provided an excellent environment for the development of coral reefs which were raised to form a limestone plain, isolating the Lanier Swamp in the interior of the island. Today this plain, which exceeds twenty feet above sea level in places,

extends almost to the edge of the Cuban platform. Its growth has been arrested by the deep water which lies close offshore, although coral reefs do parallel the southern coast in many places.

The geological history of the Isle of Pines is closely related to that of Cuba. The island belongs to the Cuban platform, and there was actually a surface connection with Cuba during part of the Pleistocene, when the levels of the ocean were lower than today. The absence of any fossils in the schists and marbles due to intense metamorphism during the formation makes it difficult to correlate comparable formations on the two islands. However, the Santa Fe schists and Gerona marbles appear to be related to certain formations of schists and marbles that outcrop in Cuba near the city of Pinar del Rio.[2]

The Climate

Any critical discussion concerning the climate of the Isle of Pines must be prefaced by an evaluation of weather data available. Observations were made as early as 1899, but there are no stations which have had an uninterrupted series for longer than thirteen years. The best data available are for rainfall. In Santa Barbara, a small village on the northwestern side of the island, rainfall data were collected from 1910 to 1923 without interruption except for 1915. The data for eight years of continuous observation are also available for a station on the southern coast,

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[2]Lewis, op. cit., p. 536.

Caleta Carapachibey. Here the National Observatory has maintained a rain gauge since July, 1947, and collected data monthly through 1955. Temperature figures are available for only one station, Santa Barbara, where records were kept from 1911 to 1920.

The climate of the Isle of Pines differs little from that experienced along the northwestern shore of Cuba. It can be described as humid tropical, although the island lies at a sufficient distance from the equator to allow it some seasonal variations in temperature and rainfall. Winters are usually dry, while summers have a high percentage of the annual precipitation. Its position as an island lying within the trade wind belt insures its having a small range in temperature from month to month as well as diurnally. The annual temperature during the thirteen years that records were kept at Nueva Gerona was 77.8 F. degrees.

The dominating influence of the island's maritime position on the temperatures causes monthly averages to vary little from one year to the next. The mean monthly temperatures for the near sea-level station of Santa Barbara range from 71.8 F. degrees in February to 81.9 F. degrees in July, giving it a yearly mean range of 10.1 F. degrees. There are no sharply defined seasons as in regions farther north, and the mean temperature for the three winter months (December-February) is 73.0 F. degrees, whereas from June to September the average monthly temperature is 81. F. degrees.

While mean temperatures are helpful in giving the overall picture of weather on the island, they do not portray the limits of

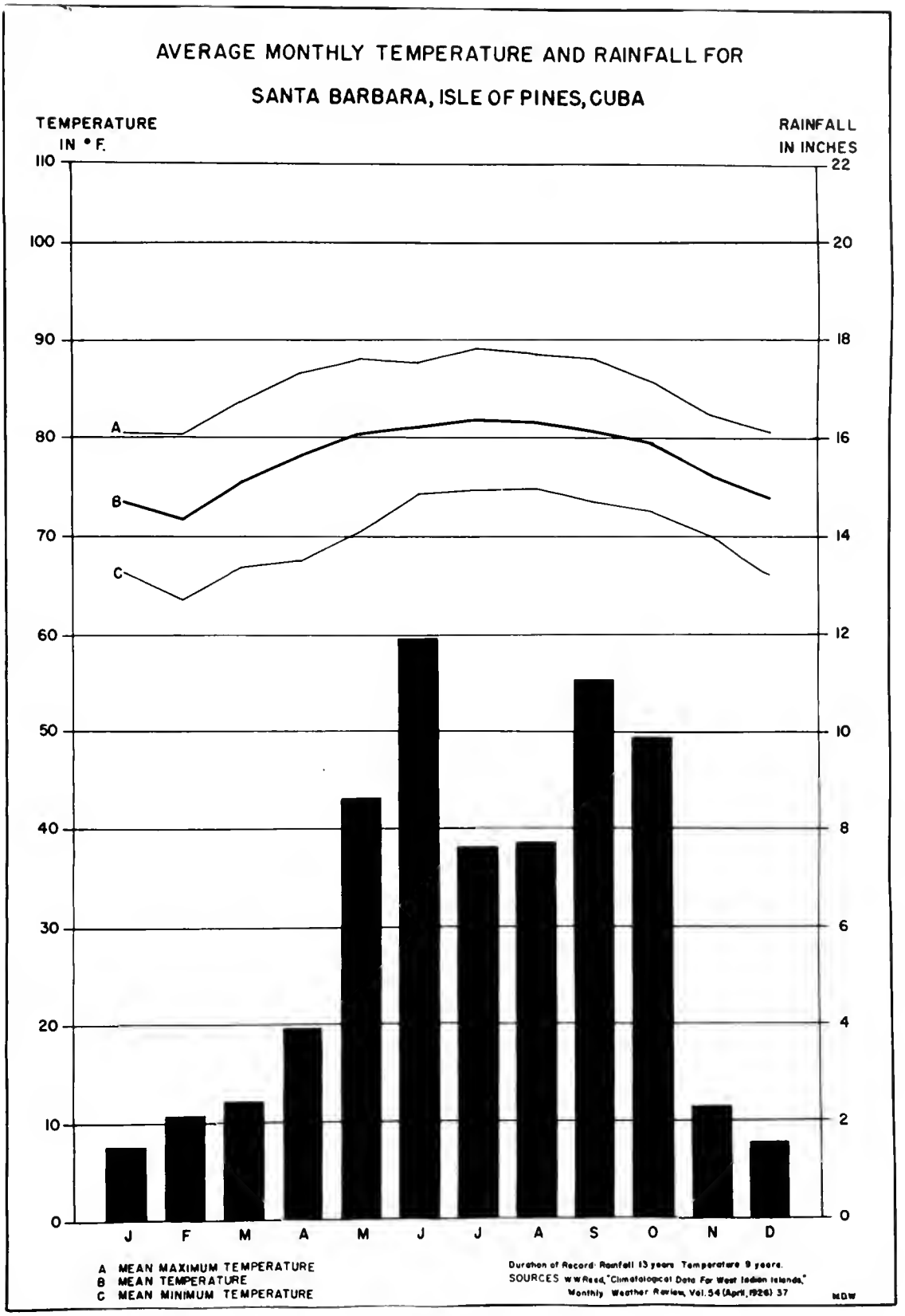
AVERAGE MONTHLY TEMPERATURE AND RAINFALL FOR
SANTA BARBARA, ISLE OF PINES, CUBA
TEMPERATURE IN °F.
RAINFALL IN INCHES
110
100
90
80
70
60
50
40
30
20
10
0
22
20
18
16
14
12
10
8
6
4
2
0
A
B
C
J F M A M J J A S O N D
A MEAN MAXIMUM TEMPERATURE
B MEAN TEMPERATURE
C MEAN MINIMUM TEMPERATURE
Duration of Record: Rainfall 13 years Temperature 9 years.
SOURCES W.W.Reed, "Climatological Data For West Indian Islands," Monthly Weather Review, Vol. 54 (April, 1926) 37
M.D.W

Fig. 4

variability. Although the marine influence prevents extreme temperatures from being excessive they show a far greater range than the average monthly temperatures.

The most important climatic control that effects temperature extremes on the island is its proximity to the North American continent. Occasionally during the winter months cold northwest winds known as nortes (Northers), which originate in the interior of the continent, will sweep over the island. Although these air masses bring freezing temperatures and subsequent crop damage to areas as far south as Miami, Florida, by the time they reach the Isle of Pines they have been tempered by the warm air of the Gulf of Mexico. Only rarely do they even approximate the severity with which they are felt in Florida.

Exteme high temperatures on the Isle of Pines owe their origin to the same factor that extreme lows do, the proximity of the North American continent. Occasional hot air masses will push out of the interior of the continent during the summer and engulf the island. Another manner in which temperatures will rise in the summer is when, for some reason, the trade winds temporarily subside.

The sensible temperatures of the island are controlled by three elements: season, wind, and humidity. During the winter, when a cold air mass from the north causes the temperature to drop into the fifties, the inhabitants suffer severely. Neither their homes nor their mode of dress is adequate to give them protection against the cold. During the summer both the temperature and the humidity have an effect on the sensible temperature. The most

oppressively humid weather occurs from July to September and is especially trying in August. Fortunately, because of the trade winds, the hot humid conditions are not too difficult to endure. However, when these breezes die down the sensible temperatures rise to oppressive heights.

From 1910 to 1923 Santa Barbara, the rainfall station on the northwestern side of the island, had the highest annual precipitation of any station in Cuba, viz. an average of 70.68 inches.

Rainfall at Santa Barbara has two distinct seasons, a dry winter and a humid summer. December through February has only 7.4 per cent of the annual average rainfall, while during the summer months June through August 38.6 per cent is precipitated. June is the month of heaviest rainfall (11.96 inches) and January is the month of lowest (1.74 inches).

Local variations appear in the rainfall regimes. Caleta Carapachibey only has an annual average of 40.15 inches of rain per year, compared with over seventy for Santa Barbara. The explanation for the difference between the two is due to the fact that Santa Barbara, in a windward location, is in a better position to receive summer convectional showers than Caleta Carapachibey, which is located on the leeward side of the island.

Three types of precipitation contribute most to the annual rainfall, convectional rainfall, rainfall brought by tropical storms, and cyclonic rainfall. The type which is experienced most frequently is the convectional shower. These storms occur at all times of the year, although they are heavily concentrated in the spring and summer

when solar radiation is strongest. In June, the month of the summer solstice, the direct rays of the sun pass over the island twice, and the resultant convectional rainfall makes it the month of heaviest precipitation at Santa Barbara.

The second most common type of rainfall is that created by tropical storms. Hurricanes have been the dread of the inhabitants of the Isle of Pines since the earliest days of colonization. The island lies in a much frequented path of these storms, and it has felt the effects of many. These storms commonly strike during the months of August, September, and October. Since 1878 there have been over thirty tropical storms of hurricane velocity which have passed within fifty miles of the island. The majority of these were rain producers and thus have augmented precipitation averages for the autumn months.

Although averages can be helpful in determining the climate of the island, it is really the departures from these averages which are important economically. Through the thirteen years of weather observation at Santa Barbara precipitation varied from 84.61 inches in 1914 to 40.56 inches in 1923. Five years during the thirteen had rainfall deviations of ten inches or more from average. Such a situation is not significant to the commercial vegetable growers, who raise their crops in the winter under irrigation. However, among the subsistence farmers and cattle ranchers a period of summer drought can cause much damage to their vegetable plots and pastures.

The Soils

A detailed study of the soils on the Isle of Pines is yet to be made. The only work of any value has been a broad reconnaissance done in 1925.[3] This reconnaissance classified the soils according to families and series and where possible correlated them with internationally recognized groups.

There are four basic soils groups on the island. Three of these are families which may be found along the Atlantic Coastal Plain of the United States; these are the Norfolks, the Coxvilles, and the Scrantons. The fourth family, known as the Matanzas, is characteristic only of Cuba.

The Norfolk family, a member of the yellow podzol great soil group, occupies the largest area of any soils family on the island. It is a residual soil, low in fertility, usually highly leached, and strongly acid in reaction. It has been formed *in situ* on the schist plain. The Isle of Pines Norfolks are friable to loose in texture and their subsoils are friable due to the abundance of sand and gravel. The rolling topography of the interior plain as well as the porosity of the soils have made them excessively drained. Being excessively drained, leaching is rapid, and organic matter has had little opportunity to develop.

There are four series of Norfolk soils on the island: the Santa Barbara, the Nueva Gerona, the La Ceiba, and the Columbia.

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[3]Hugh H. Bennett and Robert V. Allison, *The Soils of Cuba*, Tropical Plant Research Foundation, Washington, D.C., 1928.

The first series, the Santa Barbara, is found in the west, from McKinley to Los Indios. The important element which separates it from the other series is the excessively high concentration of Mal Pais quartz in its A horizon. Economically this particular series has proven quite valuable where the gravel is of low enough concentration to permit agriculture. Several of the island's citrus groves are located on it, as are farms engaged in subsistence agriculture and cattle raising.

The next series within the Norfolk family is the Nueva Gerona. It is located east of the town of Santa Barbara and runs as far east as the village of Santa Fe. In most respects the soils associated with this series are similar to the Santa Barbara soils. The only substantial difference between the two is that the Nueva Gerona soils have a great many ferruginous concretions as well as quartz gravel in their A horizons. These concretions, called perdigon by the Cubans, in places reach such a high concentration that the productivity of the soils is considerably reduced.

The third series, La Ceiba, is the least extensive soil series of the island. Located near La Ceiba hills, the soils of this series have a distinctive brown to reddish hue, probably caused by the decomposition of minerals found only in the La Ceiba schist hills.

The last series of Norfolk soils is the Columbia. This series differs from the other three because it has a shallower A horizon, and also has less Mal Pais gravel and perdigon at the surface. Its location is restricted to the northeastern part of the island,

Fig. 5.--Palm Savanna Near McKinley

Fig. 6--Close-up View of the Mal Pais Gravel Found Extensively on the Schist Plain.

where, in response to the better productivity of the soils, brought about by the absence of gravel and perdigon, a considerable amount of crop agriculture has developed.

The two other soils families present on the northern side of the island, aside from the Norfolks, are the Coxville and Scranton. These are dark gray to fine sandy loams, underlaid at between fifteen and twenty inches by pale yellow fine clay loam in the case of the Scrantons and fine sandy loam in the case of the Coxvilles. These soils are located on the coastal plain which surrounds the interior core of the island, and also along the beds of the major streams in the interior. Although the coastal plain owes its origin to alluvial deposition, the Scranton and Coxville families each have well developed profiles. Both soils are poorly drained, and in their natural state agriculture is difficult. However, if they are drained they sometimes have been found to make the best croplands on the island.

The limestone plain south of the swamp is virtually without any soil. The topography on this plain is often called <u>piedra hueca</u> (hollow rock) by the natives. The only soil present is located in the bottom of sink holes and other solution depressions. Here a thin layer of Matanzas red clay has developed over decomposed limestone rock. There are no soils developed along the southern shore, although it is here that all the southern region's inhabitants live.

The Vegetation

Columbus chose the name Evangelista for the island, but it was only a short time before the name Isla de Pinos (Isle of Pines) was adopted. The descriptiveness of this name has been a source of many erroneous conceptions concerning the vegetation which was predominant there, and frequently the island has been assumed to be composed of a vast pine forest. Twice the Spanish colonial government commissioned parties to reconnoiter the island in order to ascertain the potentialities of the pines for use as ships' masts and naval stores. Both times unfavorable reports were issued. Later, during the early part of the present century, several American lumbermen were intrigued with the possibility of exploiting the timber, but they had to abandon the idea because they found few stands of commercial grade timber. Saw mills have existed since the middle of the nineteenth century, and at one time there even was a turpentine still, but the forest has been able to supply only local lumber demands, together with a small trade in lumber and wood products with Cuba.

There are two distinct vegetation associations on the island due to the diversity in geological structure and soils which exist between the two plains on either side of Lanier Swamp. South of the swamp is a recently emerged limestone plain with poorly developed soils, while the northern part of the island is composed of a low domed structure.

The dominant ecological characteristic of the northern side

of the island is the savanna. No single plant association covers such a wide area of the island, or is more typical of the Isle of Pines landscape.

The savanna vegetation association often is not exclusively induced by local climatic conditions, but has also been greatly affected by soil types and terrain conditions. According to the theories of Bennett and Allison both the savannas of the Isle of Pines and Cuba are edaphic, being located in areas with a flat to gently rolling topography where the structure of the soil has adversely affected growing conditions.[4] Agricultural conditions are poor on these savanna lands, and practical Cuban farmers generally consider them the least desirable for farming. Reference is often made to savannas that are arable or non-arable, or those that are dry or moist. Sometimes the term rich or poor savannas is used.[5] On the Isle of Pines, where they do in fact sustain virtually all the minuscule agricultural production of the island, much savanna is non-arable, or at best dry.

Cultural influences which have completely altered the natural vegetation on many of the Caribbean islands have only had a subtle and indirect influence on the savannas of the Isle of Pines. In actuality, it is possible to travel for miles throughout the interior and see only what at first glance would be thought to be unaltered natural vegetation. Man-induced vegetation such as citrus groves,

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[4] Ibid., p. 70.

[5] William Seifriz, "The Plant Life of Cuba," Ecological Monographs, XIII (October, 1943), p. 396.

Fig. 7.--Hardwood Forest on the Southern Limestone Plain.

Fig. 8.--The Coastal Swamp Near Los Indios

a field of row crops, or an improved pasture are the exception rather than the rule. Although the term "true climactic plant associations" is difficult to apply to any Caribbean island, in a real sense much of the Isle of Pines savanna lands correspond to the accepted ideas of what the typical climax vegetation of the area would be.[6]

The savannas of the Isle of Pines are not all identical, and actually there are many different plant associations within the broad savanna group. It is possible to pass through open grass, thicket, pine and palm savannas on only a short trip across the northern peneplain.

Grass is the most characteristic plant of the savanna. In certain areas it may appear as a dense mat, while in others the high permeability of the soil or the concentration of gravels will only allow a sparse cover. There are almost one hundred species of grass present on the island. The most ubiquitous of these are the rush grass, Sporobolus indicus, and the broom sedge, Andropogon virginicus. These grasses give way occasionally to other species of the same genera, or those of several others, especially Erguostis, Panicum, Reynaudia, and Paspalum. In recent years attempts have been made to introduce new strains of grasses to improve the natural pastures. Many of these grasses have taken a firm hold among the native species.

The thicket savanna is the most common of all plant

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[6]J. S. Beard, "Climax Vegetation in Tropical America," Ecology, XXV (April, 1944), p. 151.

Fig. 9.--Pine Savanna Near Santa Barbara

Fig. 10.--Thicket Savanna Near Los Indios. Canada range may be seen in the distance.

associations on the northern side of the island. This type appears to be directly associated with the soils that have high concentrations of gravel at their surface and are excessively well drained. Here, interspersed among the various grasses are a great variety of dry sedges such as Rhynchospora globosa and "nigger head," Bulbostylis paradoxa. Arborescents are plentiful, but the most common are the peralejo, Brysonima crassifolia, B. verbascifolia, the manzanillo, Brya Ebenus, and the common sandpaper tree, Curatella americana. Larger trees may also be found, but mainly in the depressions where the water table is higher. Here the endemic bottle palm, Colpothrinax Wrightii, and the common palmetto, Acoeloraphe Wrightii are present. Only infrequently are palms seen, since they usually favor less acidic and moister soils. When they are visible they usually are the cabbage and star palms, Sabal parviflora, and Coccothrinax miraguama. In the most highly favorable places, especially in the foothills of the mountains and hills, the majestic royal palm, Roystonea regia may be seen.

The thicket savanna is increasing in size, and is encroaching onto the other types of savannas. This is due to the frequent burning of the grass and brush by the farmers. Although this practice is not as common now as it has been in the past, it is common for a farmer to burn his land in an attempt to stimulate better conditions for the more succulent young grasses to grow. This has had a serious effect on the regeneration of pines and has inhibited their propagation considerably. In many cases only the

most resistant non-herbaceous species of plants, such as the tough sandpaper tree and the peralejo, have been able to withstand the burnings. It is difficult to designate any specific area where the thicket savanna is most prevalent. Many places on the inner plain are covered with thicket, and it is interspersed with the other types of savanna. However, its frequency is greatest between Nueva Gerona and Santa Fe.

In general the woodland savannas have a park-like aspect, much as the pinelands of the "flatwoods" in the Gulf Coastal Plain of the United States. Although pine is the most important tree associated with this savanna, there are occasional palms among the pines. Usually, however, the pine grows alone, in unmixed stands, since this tree can grow on land where other trees cannot grow.

Only two species of pine are present, the tropical and Caribbean, Pinus tropicalis, and P. caribaea. At the turn of the century some pines of these two species attained diameters of over twenty four inches. However, these were logged off early and today few pines are present with diameters greater than six or eight inches. The pine savannas are mainly concentrated on the western side of the island in Los Indios district, but scattered stands of pine may be seen almost everywhere.

The mangrove swamp covers a wide area on the Isle of Pines. This association is found in both Lanier Swamp and in the swamp which borders the northern shore of the island. In each, the red mangrove, Rhizophora mangle, lies nearest the sea. This particular species is most adaptable to water which is highly saline and is not adversely

affected by the wave action felt on this coast. Landward, where the water is less saline, the red mangrove gives way to the black Avicennia nitida. In the coastal swamps the mangrove vegetation is dominant, and only rarely is it possible to see any other species of plants growing. However, the interior of Lanier Swamp is covered with fresh water. Here a great variety of fresh water hydrophitic plants such as ferns and grasses grow.

The vegetation on the limestone plain south of Lanier Swamp is mainly characterized by a dense hardwood forest. In the past there were trees of commercial importance in great abundance. These trees included the West Indian cedar, Cedrela odorata, and mahogany, Swietenia mahagoni. The best trees were cut down even before the end of the nineteenth century, and the remaining commercial timber was removed in the first few decades of the twentieth century. Today most of the trees have little commercial value, except to charcoal makers who operate in all parts of the plain. Species present include the wild tamarind, Lysiloma bahamense, pigeon plum, Coccoloba laurifolia, and a great many other trees of small size. A profusion of shrubs, vines and epiphytes typical of most limestone plains in Cuba are also present.[7] Before 1926 one thousand acres of coconut palms, Coco nucifera, were growing in the center of the plain, the project of an American company which hoped to ship copra to the United States. In 1925 a fire associated with a hurricane ravaged

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[7]Earl E. Smith, The Forests of Cuba (Cambridge: Maria Moors Cabot Foundation, 1954), p. 71.

over 100,000 acres of this plain, destroying much of the remaining forest as well as the coconut plantation.[8]

The Fauna

The pre-Columbian animal life of the Isle of Pines is extremely difficult to ascertain. There is no way to tell whether wildlife has become extinct since the time of the first colonization. Within two hundred years after discovery a multitude of European animals, both domestic and wild, had been introduced onto the island. This caused the original animal community to be altered completely.

Today the animals of the island differ little from those of Cuba. Because there are few people on the Isle of Pines, wildlife has not been greatly disturbed. However, despite the presence of a wide expanse of unoccupied land, the terrestrial wildlife is limited to mainly small mammals and reptiles.

None of the terrestrial wildlife has weighed heavily in the economy of the island. Only the wild pig, the progeny of the domestic pigs introduced by the colonial Spanish, is hunted as game. The alligators, Crocodilus rhombifer, and crocodiles, Crocodilus americanus are seldom hunted, despite the value of their hides.

The bird life is more abundant than the terrestrial wildlife. In the past one species became an important source of income for some of the island's inhabitants. The Isle of Pines parrot, Amazona leucocephala palmaxim, was a most popular domestic pet in

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[8]Cuba, Banco de Fomento Agricola E Industrial de Cuba, Estudio Economico Social de La Isla de Pinos (La Habana, 1952), p. 10. (Mimeographed)

Cuban homes during the last century. The trapping of these birds developed into an important industry among the islanders. Although the parrot population was decimated during this period, now since there is no demand for them, they are no longar hunted and their number has once again been on the rise. Several species of dove, particularly the Zenaida, Zenaida zenaida zenaida, and two species of pigeon, the White Crown, Columba leucocephala, and the Isle of Pines Plain, Columba inorta proxima, are extremely popular game birds despite their small size. Literally thousands are shot yearly by hunters who come from as far away as the United States to hunt them.[9]

The tropical sea which surrounds the island affords an excellent environment for aquatic life. Hundreds of species of fish make their home there, as well as lobster, sponges, and several species of turtles. Fishing has constituted an important ancillary industry on the Isle of Pines for many years, and a number of inhabitants are engaged in this occupation either full or part-time.

In concluding this discussion of fauna, mention should be made of the insect life on the island, as in many places within the tropics their presence has had a considerable effect on economic development. There is a great variety of insects present, just as in most tropical areas. Termite nests and ant hills are ubiquitous. Mosquitoes, because of the abundance of swamps and the associated stagnant waters, are also present in large numbers. Fortunately, none of the species

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[9]Warren Page, "The Incredible Isle of Pines," Field and Stream, LXI (August, 1956), 78-80.

are carriers of tropical diseases. Curiously the Anopheles albimanus and the Aedes aegypti, mosquitoes which carry malaria and yellow fever, respectively, never attained a strong foothold on the island. During the colonial period the island acted, for a time, as an acclimatation center for troops sent from Spain who were to be stationed in Cuba. Today the mosquitoes are most highly concentrated on the periphery of the island in the coastal swamp, and in Lanier Swamp. They are rarely seen or felt on the interior plain because the excellent drainage and savanna vegetation has not provided an environment suitable for their propagation.

Conclusion

The Isle of Pines is a low and flat plain interrupted by residual hills that rise abruptly from its surface. Structurally the island is divided into two separate geological regions by a swamp that nearly bisects its center latitudinally. North of this swamp is a plain underlain by schistose rocks; south of the swamp is a broad limestone plain developed in a more recent age. Soils are low in fertility on the northern plain and almost absent on the limestone plain to the south. In response to these conditions, and the fact that the island has a tropical climate with a dry winter, a typical savanna type vegetation has developed on the northern plain, while the southern limestone plain has a dense hardwood forest.

CHAPTER III

HISTORY OF SETTLEMENT

Pre-Columbian History

Little is actually known of the Indian population which lived on the Isle of Pines before the arrival of the Spaniards. Most vanished shortly after the arrival of the first colonists, and there are few references to their presence in early Spanish writings. It is known that the island was called Camaraco by the indigenes, as well as by the tribes of Cuba. Esqueneling, the Dutch buccaneer and chronicler wrote of several "tribes" living there in pre-Columbian times. These "tribes" were apparently at peace among themselves, linked by a council for mutual self-government. However, they were said to have jointly defended the island against encroachment by the tribes of Cuba.[1]

It has been known for years that several caves near Punta del Este possess paintings on their walls as well as numerous artifacts strewn about the vicinity. This area was visited by a party of archeologists in 1938, and in the ensuing investigation it was determined that the Indian group which had inhabited the cave belonged

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[1]Irene Wright, The Isle of Pines (Havana, Beverly Printing Co., 1910), p. 20.

to the Ciboney people of Western Cuba.[2] The Ciboneys, one of the least advanced of all the pre-Columbian residents of Cuba, lived in caves near the shore, especially in the west, and were mainly occupied with fishing.

The Indians did not survive long after the Spaniards arrived. By 1600 no mention is made of any of them remaining. Local legend has it that as the white people settled from the north and the east, the Indians were pushed to the south and west. Today, just to the north of Lanier Swamp on the western shore is a section referred to as Los Indios (the Indians). Local conjecture has it that the Indians were pushed there, eventually moving onto the Indios Keys, where they perished. However, since the Indian population never was large, certainly never rising much higher than two hundred, their significance in later historical development was negligible.

Discovery of the Island and Settlement of the South Coast to 1898[3]

The Isle of Pines was discovered on the thirteenth of June, 1494, during the second voyage of Columbus to the New World. As he was coasting along the southern shore of Cuba he ran into heavy rainstorms. Entering into what is today called the Gulf of Batabano, he became alarmed at the sight of so many shoals. It is believed that he turned south and sought shelter in Siguanea Bay, on the south-

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[2]Rene Herrara Fritot, "Las Pinturas Rupestres y el Ajuar Ciboney de Punta del Este, Isla de Pinos," Revista de Arqueologia y Etnologia, II (November, 1938), p. 40.

[3]Residents of the island commonly refer to that area north of the swamp which bisects the island as the "North Coast" and the limestone plain to the south as the "South Coast."

western side of the island. After the storm had subsided he went ashore to replenish his supply of water and to search for any foodstuffs he might find, remaining there until the twenty-fifth of June, when he left to return to Haiti.[4]

Before leaving the island he named it Evangelista. This name was affixed because of the presence of a priest of the order Saint Mary of Mercy, who had accompanied him on his second voyage.[5] The name Evangelista was little used. It only appeared on the earlier charts of the Caribbean and Cuba, and was soon supplanted by the name Isla de Pinos (Isle of Pines), which gained general acceptance immediately.

During the early period of the Spanish conquest of Cuba, when the encomiendas and mercedes were granted so profusely, the island was considered of such little value that it went unclaimed.[6] Several reasons can be advanced for this. First, the original settlers were in search both of gold and of the slaves to mine it. As the Isle of Pines had no easily exploited gold deposits and few Indians, it did not appear as inviting as other, more accessible areas. Another reason why the island remained unclaimed for a long period after initial discovery was the fact that newly conquered Mexico was

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[4]Samuel Eliot Morison, Admiral of the Ocean Sea, Vol. II (Boston: Little Brown, 1942), pp. 149-150.

[5]Filiberto Ramirez Corria, Esclarecimiento al enigmatico bautizo de la Isla Evangelista (Nueva Gerona, Archivo Historico Pinero, 1955), p. 7.

[6]Encomiendas were early Spanish grants of Indians to colonists who were given the right to use them as labor. Mercedes were actual land grants issued by the Spanish government.

much more attractive for colonization than Cuba; this was responsible for the extremely slow growth of Cuba's Spanish population. In 1537 there were only three hundred Spanish, five hundred slaves, and approximately five thousand Indians in Cuba.[7] As there was an ample supply of good land in Cuba which was available for the colonial government to grant, it was not until 1572 that the land of the Isle of Pines became privately owned property.[8]

During the sixteenth century, as the grip of Spain tightened on her possessions in the New World, Central America, and South America, galleons laden with large quantities of gold, silver, and precious stones began to move toward Spain. As early as 1523 French privateers commenced intercepting Spanish ships and they soon were joined by British and Dutch marauders; together the three took a heavy toll on Spanish shipping. The Spanish quickly realized that if they were to continue carrying such valuable cargo between the New World and Spain, they would have to find a way to protect their ships from attack. Large convoys of these galleons were organized which travelled between Havana and Seville, Spain under the protection of Spanish naval vessels. The fact that these treasure laden galleons were to collect in Havana for the trip home meant that the best opportunity the pirates had of attacking them was when they were travelling alone from one of the South American, Central American,

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[7]Levi Marrero, Geografia de Cuba (La Habana, 1951), p. 145.

[8]Irene Wright, The Early History of Cuba (New York: Macmillan, 1916), p. 308.

or Mexican ports to Havana.

The majority of Spanish shipping in the Caribbean eventually funnelled through the Straits of Yucatan in the journey to Havana. Due to this fact the Isle of Pines, lying just southwest of Cuba, became important to the pirates who operated along the shipping lanes; a ship leaving the Isle of Pines was only one or two sailing days distant from the heavily travelled Straits of Yucatan. Furthermore, a week's journey was all that the pirates needed to reach Vera Cruz, Campeche, or Trujillo, ports on the continent where the bullion was collected for shipment to Havana and eventually to Spain.

During the second half of the sixteenth century pirates often made short stops at the island, an ideal location for a rest or refitting station, since it was sparsely populated and free from Spanish surveillance. There was no census taken on the island during the sixteenth and seventeenth centuries, but the character of the population was known, made up as it was of stragglers who had remained behind when their ships had departed, refugees from wrecked ships, escaped convicts from Cuba, and fugitive Negro slaves. The latter, called cimarones by the Spanish or "maroons" by the English, escaped from Spanish settlements in Cuba. Finally, there were men who, as punishment, had been "marooned," that is, had been put ashore to fend for themselves on the desolate coast among the maroons.

This lawless element, probably never more than one or two hundred during the entire sixteenth and seventeenth centuries, roamed over the entire island. They lived on the herds of cattle and swine, wild descendants of those introduced by early Spaniards to multiply

and provide meat for Spanish ships that might stop there to take on provisions.

During the sixteenth century the pirates preempted the entire island, but toward the close of the century they concentrated their activities south of Lanier Swamp. Here they found a most fortuitous combination of geographic circumstances which made it well suited to be used as a base of operations. There were offshore bars which blocked the lagoons along its shores to the deep draft Spanish naval ships, but allowed the shallow draft "flyboats" of the pirates to enter. The sea lanes were close by, making it possible for the small corsairs to execute quick attacks on shipping and to return to the safety of the shore before the better armed Spanish ships could reach them. Furthermore, their position was relatively impervious to attacks by land from the north, since Lanier Swamp and an impenetrable jungle separated their bases from the northern plain.

In addition to pirate activities, the Caribbean became the scene of considerable contraband trade during the seventeenth century. The Casa de Contratacion in Seville, the government agency empowered to control commerce with the Spanish New World, strongly impeded economic development of the Spanish colonies because of its mercantilistic policies. Excessive duties were levied on goods, and every effort was made to force colonists to trade through the Casa de Contratacion.

The situation became so intolerable to the Spanish colonials in Cuba that English, Dutch, and French traders, often encouraged by

their governments, were able to carry on a substantial illicit traffic in merchandise with them. Naturally the Spanish government did everything within its power to prevent this trade, which reduced the revenues of the Crown. However, it was extremely difficult to prevent. The coasts of Cuba, and for that matter of the entire continent of South America, were too long to be patrolled by the Spanish Navy. Also repression of contraband trade was difficult because of the venality of the Spanish colonial officials, who, when given sufficient bribes, tolerated, and often encouraged the traffic.[9]

As the smugglers operated principally along the southern coast of Cuba, the Isle of Pines became important as a base for the deployment of their ships. This was especially true before Jamaica fell to the British, but even afterwards, when Jamaica became the center of illegal commerce in the Caribbean, the Isle of Pines continued to hold a prominent position in the trade. Many ships touched along the southern shore of the island in the seventeenth century, some staying for a few days, others remaining for many months. Its isolation made it ideal for the contrabandists to negotiate business and transfer cargoes.

In the meantime the pirate influence had not ceased. There were a number of small groups which periodically made their bases of operation there, although by that time the majority had gone to

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[9]C. H. Haring, The Spanish Empire in America (New York: Oxford University Press, 1947), p. 333.

Jamaica and Tortuga. During the seventeenth century two illustrious pirates chanced to use the island. In 1629 Cornelius "Peg-Leg" Jols, a famous Dutch buccaneer, spent the summer along the southern shore, and in 1668 Henry Morgan, probably the most famous pirate to sail the Caribbean, used the island to launch his successful attack against Puerto Principe, in Cuba.[10]

Today this section of the island has several coves which bear names given to them during this era. There is Caleta de Purgatorio (Purgatory Cove), Caleta del Diablo (Devil Cove), and Caleta de Augustin Jol (Augustin Jol Cove), named after a relation of Cornelius Jol. Other names are Laguna El Tesoro (Treasure Lagoon) and two salt marshes named Corsair and Buccaneer. It has been said that Robert Louis Stevenson set the locale of his book "Treasure Island" on the island; however, there are several other islands in various parts of the world which also claim this dubious honor.

In the eighteenth century the South Coast of the Isle of Pines continued to be a lair for small-scale pirates and smugglers, although they were not the scourge of shipping that their predecessors had been. In addition to their usual illegal activities, a new activity was added early in the century. Jamaicans and Cayman Islanders began to fell the large stands of mahogany and cedar trees which grew prolifically on the limestone plain behind the southern shore. This timber was transported back to the two islands, and much of it

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[10]Jacobo de la Pezuela, Historia de la Isla de Cuba, Vol. II (Madrid, Bailly Bailliere, 1868), p. 49.

eventually found its way to England. In truth, it can be said that the British were deriving a bigger profit from the illegal exploitation of the timber resources of the island than the Spanish were gaining from their cattle on the northern side of the island. Furthermore, the activities of these residents of Jamaica and the Cayman Islands were not confined to lumbering, as they also engaged in poaching green and Hawksbill turtles that were found along the shores of the island.

At the opening of the nineteenth century the entire Isle of Pines came under the sway of a pirate and smuggler known as Pepe el Mallorquin. He and his crew achieved regional notoriety for their audacious attacks on Cuban coastwise shipping. Further, the Spanish Navy was unable to prevent them from dealing in contraband.

Their attack on foreign shipping eventually brought their end. In 1822 they were pursued by two English man-of-wars up the Jucaro River on the northeastern side of the Isle of Pines. The English dispatched a party of men from their ships and completely exterminated the entire pirate gang, including Pepe.[11]

This engagement served to focus attention on the Isle of Pines after centuries of neglect. The English, after the battle, notified the Spanish government that if it persisted in permitting the Isle of Pines to continue to be the lair of pirates and brigands they would annex it into the British Empire, and clear it of the lawless element themselves.

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[11]Ricardo V. Rousset, Historial de Cuba, Vol. I (La Habana, Libreria "Cervantes," 1918), p. 281.

This ultimatum, among other contemporary events, induced the Spanish government to send a military force to the island. The arrival of this detachment in 1828 brought to a close the centuries of pirate activity, and the island achieved a stability which it had never experienced previously.

Throughout the remainder of the nineteenth century, the South Coast, which had never been officially explored, continued to be ignored. Although it had passed into private domain early in the seventeenth century, it rarely was economically exploited by any owner. Titles were passed on by inheritance or sold, but few owners deemed it of such value as to warrant development. Even after the lawless element had been removed, it languished in virtually the same state that it had experienced in the pre-Columbian period.

The only legitimate economic activity in the area was charcoal making and the hewing of poles to be used as tobacco stakes in Cuba. Few people resided there permanently, and those who did were mainly Cayman Islanders. These people earned a precarious existence from fishing or cutting wood. The nefarious visits by Jamaicans and Cayman Islanders, who continued poaching turtles and cutting valuable timber, persisted throughout the century, though in a much more modified scale than previously.

Colonial History: The North Coast

The colonial history of the North Coast bears little similarity to the romantic history of the South Coast. Although periodically it came to be dominated by the lawless element that frequented the

southern shores of the island, it more frequently languished in a state of depressed economic development, ignored by the colonial government in Havana.

The entire island was granted as a merced in 1572 to Alonso de Roja, a member of a large landholding family in Havana. Little attention was paid to it during this period, and it is not known whether Rojas felt his property valuable enough to warrant a visit. The island seems to have returned to the Crown a few years after Rojas received it, for in 1627 the Government made a grant of the entire island to another prominent landholder residing in Havana, Hernando de Pedroso.

During the final decade of the sixteenth century the Spanish government recognized a fact that the pirates who visited the Isle of Pines had long taken advantage of. The pines on the island were ideally suited as ships' masts. After Spain's normal source of wood for ships' masts was closed to them, because of a rebellion in Flanders, orders were directed to the authorities in Cuba to make investigations to find a source of timber on the island. A favorable report was actually submitted, but the island's geographic position acted as a deterrent to development, since the Spanish instead began to exploit more accessible forests on the western coast of Cuba, between San Antonio and Bahia Honda.[12]

Exactly one hundred years elapsed between the time of the

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[12]Wright, The Early History of Cuba, op. cit., p. 308.

grant to Pedroso and the first genuine attempt to initiate economic activity on the island. In the interim the island had passed from generation to generation of landholders until at one time property on the island had been broken into at least nine different holdings. In 1727 Nicolas Duarte, a distant relative of the original owner, managed to consolidate all holdings under his control. Yet through the entire one hundred years which elapsed between the Pedroso grant and the reconsolidation of holdings on the island by Nicolas Duarte, it is doubtful if one of the owners felt his holdings there worthy of a visit.

In the year that Duarte gained control of the island he commissioned a French cattle expert to develop two cattle ranches on his property, one northeast of Lanier Swamp and the other along the northern shore near Las Nuevas River. These ranches were named Las Nuevas and Santa Fe. At approximately the same time that he had commissioned the development of the first two ranches he hired another man to organize five more in the north and northeast. These ranches were named San Juan, San Pedro, La Jagua, Sierra de Casas, and Santa Rosalia. In 1758, the year of his death, these seven <u>haciendas</u> were divided among his seven sons, while the South Coast remained in a state of <u>pro indiviso</u>, each of the seven sons having an equal share in its ownership and management.

In 1763 one of the sons, Francisco Duarte, was appointed <u>capitan a guerra</u> of the island, receiving his appointment from the governor of Cuba. Both Francisco and later his son, Domingo, were active in trying to encourage settlement of the island, the population

of which at that time amounted to less than one hundred inhabitants. In 1778 Francisco, on his own initiative, actually attempted to organize a colony and appealed to the governor of Cuba for an investigation of the Isle of Pines with the objective of receiving government sanction and financial assistance for his project.[13] His appeal was disregarded by the government, which believed further settlement would only encourage the pirates to strike; at that time Cuba was in no position to defend the island.

A request was directed to the Catholic Church to place a parish there, hoping that the presence of a house of worship would help promote colonization. Even this request was refused because the Bishop felt that there were not enough residents on the island to warrant a permanent priest. The Diocese of Quivican, which had jurisdiction over the Isle of Pines, sent a priest only once a year until 1789 when a permanent priest was appointed.

Conditions on the island were so unattractive that in 1773 the total enumerated population was only seventy eight. There were probably many people on the South Coast who purposely avoided enumeration because of the nature of their activities.[14] In that year the government levied the first tax on the island: a specified amount of meat to be delivered to the public market in Havana.

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[13]Enrique Gay-Calbo, Discursos, Isla de Pinos, Belga: Tentativa de Compra a Espana, en 1838-1839 (La Habana, Academia de la Historia de Cuba, 1942), p. 44.

[14]Ramon de La Sagra, Historia economico-politico y estadistico de la Isla de Cuba (La Habana, Imprenta de las viudas de Arazoza de Solar, 1831), p. 3.

In 1792 Dionisio Franco, formerly secretary to the Viceroy of Lima, was set free on the island by the British who had captured his ship. He remained there six weeks and during this period, probably only for his own amusement, drew up the first report ever made of economic conditions there.[15]

The report was not complimentary to the agricultural situation on the island. Franco related how he saw cattle and hogs which were allowed to roam the island untended, the local citizens apparently taking no interest in their actual ownership. At the time of his visit there were twenty ranches owned by three families, all related by marriage, but not living on the island.

Cattle production was the only apparent occupation of the eighty-six people he counted, including mayordomos, farm laborers, and squatters.[16] In his entire visit on the island he noted that the only land he saw devoted to crop agriculture was the small vegetable plots of the squatters and laborers. The livestock rarely was exported to Cuba unless the price of beef in Havana was extremely favorable. During Franco's visit, cattle prices were depressed, and dried beef sold for an unusually low price. At that time three- to four-year old Isle of Pines cattle were being sold for ten to twelve dollars apiece in the Havana market. Six-year olds were marketing for thirteen to fifteen dollars. However, the margin of profit was cut appreciably because of the excessive transportation

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[15]Wright, The Isle of Pines, op. cit., p. 22.

[16]Ibid.

charges; two dollars per head was the charge for shipping cattle from the Isle of Pines to Batabano, Cuba. During periods of increased pirate activity shipping charges were raised to three dollars per head. In addition to the tariff for movement by ship, fifty cents per head was levied for driving the cattle from Batabano to Havana. Not only did the freight charge make it difficult for Isle of Pines livestock to compete well in the Havana market, butthose cattle that were shipped usually arrived at market lighter and less finished than cattle which were moved from ranches near Havana. At the time of his visit, Franco estimated that the island was shipping approximately five hundred head of cattle per year, its only trade with Cuba.[17]

In a report submitted in 1797, Julian Tirry y Lacy estimated that the livestock population of the island was 6,631 head of cattle, 3,365 hogs, and 111 horses.[18] This report, which was made for the Spanish government to determine the value of the island's timber resources for use as ships' masts and naval stores, spoke eloquently of the island and its potentialities. To Tirry:

> The country is worthy of development; it is suitable to agriculture, but needs population, the attention of the Church, and the help of the State for its defense. It could be put in a position to defend itself with little expense, were the State to aid, cooperating in its advancement. The cattle industry could shortly be made four times what it is. If assistance is not forthcoming, however, island, inhabitants, and herds are doomed to decadence and to a state of misery and desolation even worse than which at present exists. Tortoise fishing, tobacco

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[17] Ibid., p. 26.

[18] Ibid., p. 29.

> culture, and exportation of hard woods are three lines of industry I believe could be profitable; they would increase in importance. . . . It would indeed be a pity to leave desolate an island that has rivers to water its fields, which are so suitable for cultivation; that has coasts for rich fishery; that with so little assistance could be made so highly profitable. For . . . in general . . . the soils of the Isle are easy to cultivate, though there are some areas on the plains which are in truth quite useless.[19]

Over twenty years elapsed between the time Tirry submitted his report to the colonial government and the time action was begun to ameliorate economic conditions on the island. The incident that inspired action was the British threat lodged after the defeat of Pepe el Mallorquin and his pirate band, that if the Spanish did not rid the Isle of Pines of pirates and contrabandists they would take it under their own sovereignty. However, also at this time the Spanish government, roused to activity by the slave revolt in Haiti, had begun to establish colonies of white people in various parts of Cuba. A commission, the Junta de Poblacion Blanca, was established to organize these colonies. It was this commission that sent a party to the Isle of Pines in 1826 to investigate possibilities for the founding of a colony there.

The party issued a favorable report, and the following year the government sent a detachment of troops and a number of prisoners both to subdue the lawless element on the island and to commence work on building a garrison and administration building for the projected colony. The officer in charge of the detachment chose a site on the left bank of the Las Casas River for the village which would serve

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[19] Ibid., p. 28.

the new colony. Here he laid out streets and built a garrison and administration building. Nueva Gerona was chosen as the name for the new town, in honor of General Vives, the governor of Cuba, who had won honors at Gerona in Spain during the war against France.

The government began to purchase land the year construction of the garrison and clearing of the town site began. A total of four thousand acres was bought by the government adjacent to the site of the town, and an additional two thousand more acres were donated by property owners on the island. On August 1, 1828 the Consejo de Indias officially established the colony under Royal Decree 2,557, naming it Colonia de la Reina Amalia (Queen Amalia Colony), after the third wife of Ferdinand VII, King of Spain.

In the year 1830 the government issued regulations for the settlement of the colony. These regulations specified that the amount of land assigned to settlers would be in accordance with the number of their dependents. Payment for this land would be decided upon after a ten year period, when one hundred pesos would be charged for each thirty-three acres under cultivation, and fifty pesos for each thirty-three acres not in production. Payments would be made over a twenty year period until the principal was paid. To stimulate economic growth all export duties would be rescinded for a period of fifteen years, and import duties on food, clothing, and articles pertaining to agriculture and industry would be suspended for the same period. In addition, the ten per cent tax normally due the King on all profits would not be collected for a period of fifteen years; after that period only two and one-half per cent would be

collected for fifteen years.[20]

Despite the advantageous financial arrangements provided by the colonial government, the colony did not prosper; fewer people arrived than the authorities had anticipated. The principal source of settlers seems to have been landless laborers and squatters already resident on the island. It is reported that Santa Fe, the only recorded community on the island before the establishment of Queen Amalia colony and Nueva Gerona, was almost completely depopulated the first year land was granted in the colony.[21]

The new colony aroused such little Cuban interest in the island that in 1838 the Belgian government actually tried to negotiate its purchase from Spain.[22] Belgium had just acquired its freedom eight years previously and was very anxious to establish colonies throughout the world, recognizing that its only chance for economic prosperity was as a commercial nation. Leopold I, the country's first sovereign, was especially interested in establishing a commercial base in the Caribbean. He instructed Baron Norman to explore possibilities of purchasing the Isle of Pines. Through the years 1838 and 1839 Norman wrote a series of optimistic dispatches concerning the island's advantages as a Belgian commercial base, contingent on Spain's acceptance of a transfer of sovereignty. Doubt

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[20]Gay-Calbo, op. cit., pp. 45-48.

[21]Jacobo de la Pezuela, Diccionario Geografico, Estadistico, e Historico de la Isla de Cuba, Vol. IV (Madrid, Impr. del Estab. de Mellado, 1863), p. 233.

[22]Gay-Calbo, op. cit., pp. 20-43.

seems to have arisen in the minds of Belgian officials at home, despite Norman's enthusiasm. These officials were especially apprehensive when they learned of the shallowness of the ports of the island as well as that of the Gulf of Batabano. In any event, negotiations progressed as far as the Belgian charge d' affaires in Madrid bringing the matter to court. The offer did not appeal to the Spanish Crown for the matter was dismissed in 1839.

Despite the lack of success of the colony, after 1830 the island began to increase in population. The first census that the island's population numbered more than 100 was in 1831 when, according to the census, 427 people were residing on the island. By 1850 this figure had risen to 1006, an increase which cannot be exclusively attributed to natural increase. Migration was promoted by the security given to the island by the presence of troops. By 1858 approximately 35 per cent of the inhabitants were born elsewhere than on the island, compared with 20 per cent for Cuba.[23]

The exclusive domination of the cattle industry was somewhat broken with the arrival of the new immigrants. The majority of new arrivals were poor and either squatted on small plots on the latifundia or bought small parcels of land. Because of their poverty they were forced to engage in crop agriculture rather than in livestock raising, and for the first time in the history of the island many vegetable crops were produced, though largely on a subsistence basis.

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[23]Pezuela, Diccionario Geografico, Estadistico e Historico de la Isla de Cuba, Vol. IV, op. cit., p. 235.

The island's isolation from Cuba, which had retarded its economic development from the earliest days, continued to bedevil it, and transportation to Cuba remained difficult until the mid 1840's. The only boats which called at the island were small fishing craft which occasionally called from one of the ports on the southern shore of Cuba, or chartered vessels.

The first regular transportation service between Cuba and the Isle of Pines began in 1849. A weekly steamship was put in operation by an Isle of Pines merchant who had begun to tap 320,000 pine trees for turpentine and naval stores.[24] The naval stores industry was only a short-lived venture but the scheduled boat service continued with such success that by the 1850's the Isle of Pines had developed a small tourist industry.

Before the beginning of the nineteenth century it was recognized in Cuba that the Isle of Pines had certain environmental qualities that Cuba did not possess. For example, the incidence of tropical diseases such as yellow fever was much lower than in Cuba. The Spanish colonial government, recognizing the therapeutic value of conditions there for the sick, considered the idea of making it an acclimation and convalescent station for its troops stationed in Cuba. In 1827 the Commander of the Barcelona Regiment in Cuba proposed to send to the island:

> Such Privates as suffered diseases of the lungs, in order to utilize for their advantage the virtues and excellence of that

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[24]Irene Wright, Gem of the Caribbean (Isle of Pines, The Isle of Pines Publicity Company, 1909), p. 24.

climate, considering it an appropriate place for convalescents to recover their lost health.[25]

Mineral springs discovered near the town of Santa Fe also were believed to have waters with curative powers. In 1857 Dr. Jose de la Luz Hernandez published a treatise on these springs which aroused a great deal of interest in the United States as well as in Cuba.[26]

Two hotels were built near the town to accomodate the people who arrived to take the baths. Samuel Hazard, an American citizen, took the weekly steamboat from Batabano in 1865 in order to enjoy the baths. Although he was dubious of the value of the baths he felt that the environment of the island was more refreshing than that of Cuba and wrote of seeing several Americans as well as Cubans who were in Santa Fe for their health.[27]

A deterrent to the development of the tourist industry and one that hindered migration was the stigma of the island having once been the abode of undesirables such as pirates and smugglers. The government's use of the island as a penal colony beginning in 1826 only added to its bad reputation. The first prisoners to arrive were those attached to the squadron which came to clear land and to lay out the Queen Amalia Colony. Initially the prison population was small, but even in 1848 one writer, Jose de Luz y Caballero, referred to the Isle of Pines as "The Siberia of Cuba. Those who

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[25]Irene Wright, Cuba (New York: Macmillan, 1910), p. 318.

[26]Jose de la Luz Hernandez, Memoirs on the Salubrity of the Isle of Pines (Havana, 1857).

[27]Samuel Hazard, Cuba with Pen and Pencil (Hartford, Hartford Publishing Company, 1871), p. 389.

aren't killed here [Cuba] are then commanded to die there."[28]

At first the island was used as a detention center for common criminals, but in 1869 the Spanish government began to banish political prisoners there. The size of the prison population grew so rapidly that there were not facilities to take care of them. Eventually the political prisoners who were exiled to the island were given the choice of providing their own board and room, or of living at the prison at night. All were allowed to find employment if they could, the only serious regulation being that they had to appear for roll call twice daily. In 1870 the great Cuban patriot Jose Marti was exiled to the island after he had spent several months at hard labor in a penitentiary in Havana. He only resided two months on the island before he was pardoned and left for Spain.

During the American Civil War a group of slaves escaped from Florida and settled on the island. Today there is a small community several miles west of Nueva Gerona known as La Colonia (the colony), where their descendants live. Most of the original settlers were named Baker. However the Cubans, being unable to pronounce "Baker," corrupted it into "Baca," and today there are several Negro families on the island with the name Baca.

The Isle of Pines was never an active participant in the internecine warfare which took place between the Spanish and the Cubans. However, as the situation became more acute in Cuba,

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[28]Waldo Medina, El Presidio Que Estorba: Temas Penitenciarios (La Habana, Editorial Lex, 1947), p. 64.

especially in the Province of Pinar del Rio, groups of people fled to the safety of the island. During the period 1896 to 1898 one American tobacco firm, Henry Clay and Bock Company, moved its tobacco plantation from the trouble-torn Vuelta Abajo region in Pinar del Rio Province to the Isle of Pines. This firm took up two thousand acres of land, transfering equipment, plant seedlings and personnel from their old farms.[29] The movement was not permanent, and the company resumed operations in Vuelta Abajo immediately after the resumption of peace.

Tobacco and wood products were the principal trade the island had with Cuba during the latter half of the nineteenth century. The conditions in Cuba had much to do with the growth of tobacco, as the price became so great due to damage to the crop in Pinar del Rio Province that the Isle of Pines product could compete well on the Havana market. For a brief period just before the termination of the war there was a flurry of cattle trading due to a rumor that the Spanich government was going to confiscate all herds. Most were shipped off to Havana for sale.

During the Spanish-American War the inhabitants of the island again saw no active warfare, although many men went to the mainland to join the fighting. Instead of being a scene of battle it became a place of refuge for a large number of Spaniards who were trying to escape the battle areas. At the time that the American Expeditionary

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[29]U.S. Congress, Senate, Isle of Pines; Papers Relating to the Adjustment of Title to the Ownership of the Isle of Pines. 68th Cong., 2nd Sess., 1924, Document No. 166, p. 66.

Force was operating in Cuba several proposals were made as to how the Isle of Pines could be utilized. At one time it was thought that it would be well suited as a place for dataining prisoners of war, and an officer was sent to the island to determine its possibilities. This proposition was deemed infeasible, but later another officer was sent to reconnoiter the area to see if it would be possible to base a battalion of troops there. To quote from the officer's letter to Headquarters Seventh Army:

> It would take a month to get a battalion on the Isle of Pines by the present steamer, and as there are no other boats in or around the island of Cuba except those drawing too much water for the trip, no other boat can be used.[30]

The American Period: 1899-1925

The wars of independence ravaged Cuba, but hardly affected the Isle of Pines. Aside from a number of refugees who had fled Cuba at the height of the fighting, there was little to remind the island's residents of the conflict, even after the United States declared war on Spain. These people were reconciled to living on their small island ignored by the new Cuban administration just as they had been ignored by the Spanish; it was impossible for them to realize that they were on the threshold of what in many ways would be the most prosperous and interesting period in the island's history.

The facts surrounding this phase of the history of the Isle of Pines are difficult to ascertain. Much has been written about it, the majority of an inflammatory or prejudiced nature. The

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[30] Ibid., p. 185.

orientation of developments during this period grew out of a mutual misunderstanding on the part of Cuban and United States citizens of the Treaty of Paris which concluded the Spanish-American War. This confusion arose from the wording of the first two articles of this treaty, quoted below.

> Article I. Spain relinquishes all claim of sovereignty over or title to Cuba. And as the island is, upon its evacuation by Spain, to be occupied by the United States, the United States will, so long as occupation shall last, assume and discharge the obligations that may under international law result from the fact of its occupation, for the protection of life and property.
>
> Article II. Spain cedes to the United States the island of Porto Rico and other islands now under Spanish sovereignty in the West Indies, and the island of Guam in the Marianas or Ladrones.

The Isle of Pines is an island, separated from Cuba by thirty three miles of water, hence under one interpretation of these clauses, the island might be considered to have been ceded to the United States. In Article II the phrase "and other islands now under Spanish sovereignty in the West Indies," was believed by certain Americans to be a clear indication of official United States intent to annex the island.

Not only was the loosely worded treaty felt to be an indication of United States intent to annex, but inadvertently President McKinley gave verbal consent to include the Isle of Pines with United States territory on an official map that was published in 1899, 1900, and 1902. Further, proponents of United States annexation of the island pinned their hopes on letters written by General John J. Pershing, Assistant Adjutant General, and G. D.

Meiklejohn, Assistant Secretary of War which expressed their opinion that the island belonged to the United States.[31]

The first American to come to the island to purchase property arrived in 1899 with the intention of buying a small farm. He found this impossible, since the only land for sale was in large tracts. By 1901 several other Americans arrived to negotiate for property, but they also encountered the same problem. Unless a person could afford to purchase tracts of over one thousand acres there was little land available. Realizing this, these men returned to the United States to obtain financial backing. Land companies were incorporated under various state laws in the United States, and stocks were issued. The directors of these companies then returned to the Isle of Pines and began the purchase of large blocks of land. The speed with which they acquired property was phenomenal, almost two-thirds of the island passing into American ownership by 1903, and by 1910 the amount had risen to nine-tenths.

The companies which bought the majority of the land were the El Canal Company, the Isle of Pines Company, the Isle of Pines Land and Development Company, the Santa Fe Land Company, and the Almacigos Springs Land Company, but later at least ten more were active. These firms were American owned and operated, most of them having their central offices in the United States. Some companies were sincere in their stated objective of selling small ten to forty acre tracts of land to United States citizens who wished to live in

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[31]Russell H. Fitzgibbon, Cuba and the United States: 1900-1935 (Menasha, Wisc.: Banta Publishing Co., 1935), p. 95.

the tropics. Others were strictly speculative, although they never would admit to such an accusation. Aside from the profit motive, all companies realized the importance of obtaining official recognition from the United States Government that it was American territory; they devoted much money for lobbyists in Washington who would promote this end.

During the initial period of American acquisition of land on the Isle of Pines legislative and judicial action in the United States alternately aided and abetted the efforts of the proponents of American sovereignty for the island. At the time the "Platt Amendment" to the Treaty of Paris was enacted defining the relationship of Cuba to the United States, a clause was inserted stating "the sovereignty of the Isle of Pines is to be left to later determination." This was received with considerable jubilation by property owners on the island, but two years later the enactment of a treaty between Cuba and the United States recognizing Cuban sovereignty brought gloom to the community. The United States Congress allowed this treaty to expire unratified but a second treaty was enacted the next year which, although it was not signed by Congress, had no limit on its ratification date. Another crushing blow to the American community which had developed on the island was dealt on April 8, 1907, when the United States Supreme Court handed down a decision declaring the Isle of Pines a foreign territory.[32]

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[32]The case was that of Pearcy v. Stranahan in which the plaintiff sought to recover the value of certain cigars imported from the Isle of Pines and seized by the collector of the port of New York.

Americans had moved from the United States to foreign tropical areas before. There were the Confederate diehards who went to Brazil after the conclusion of the Civil War. There were even several colonies of Americans on the Cuban mainland which were established immediately after the Spanish-American War and for a time appeared to show signs of being a success. However, few times in American history has there been such a concentrated effort to settle Americans in a foreign area as there was on the Isle of Pines. It must be remembered, of course, that the majority of settlers arrived with the feeling that inevitably it would be officially recognized as United States territory. Nevertheless, the rise of the American community on the Isle of Pines has few parallels in the history of American settlement in foreign areas.

The story of this development of the community is obscured by the distorted literature put out by the land companies to attract buyers. Many of the companies printed brochures exaggerating advantages of the physical, economic, and cultural environment on the island with a view to making it seem a virtual paradise to any prospective purchaser of land. They employed every kind of subterfuge to avoid admitting that the island was controlled by Cuba; some companies even printed the address of the island as "Isle of Pines, West Indies" rather than Isle of Pines, Cuba.

The enthusiastic though distorted sales campaigns of the land companies attracted thousands of buyers. Beginning in the year 1903 Americans began to arrive in large numbers. It is difficult to estimate the number of Americans who did arrive in the years 1903 to

1917, which was the period of maximum American immigration. At times the American community numbered over one thousand, mostly Americans who had come to the island to farm. Aside from these Americans, many others bought parcels of land by mail or from the land company offices in the United States, some for speculative purposes, others with the idea of perhaps living on them in their old age.

Those who arrived, whether they came from small towns or farms in one of the Midwest states or from one of the larger cities on the Eastern Seaboard, were imbued with the pioneer spirit. Usually they arrived on the island with only small reserves of money, but with a strong will to succeed. Few of them had any but the vaguest notion about tropical agriculture; because of this they often fell victim to sharp operators who were able to take advantage of their ignorance of tropical conditions and sell them fantastic schemes such as raising date palms and rubber trees. Despite the initial recklessness with which many of the Americans approached the development of their small farms, eventually the majority turned to citriculture.

The first American community on the island was founded in 1902 by the Tropical Land and Development Company. This settlement, called Columbia, was located near the mouth of the Jucaro River, on company land. In a short time a second land company established another town on the northwestern side of the island named McKinley. These two successful communities were followed by announcements of a great many other villages to be established by other companies.

During the period from 1903 to 1910, when the land companies were at the height of their activities, all the fantastic schemes later employed in the Florida land boom of the 1920's were used. Towns with names such as Westport, Penrose, San Francisco Heights, and even one named Key-View-by-the-Sea were envisioned, and sometimes even laid out. Sites for beautiful resort hotels and golf courses were staked out and signs erected announcing the imminence of their construction. One land company even announced construction of a narrow gauge railway which was to circle the island.

Each land company concentrated its sales campaign in a specific area of the United States, although all were willing to sell to anyone who might desire acreage. Because of this there were certain areas of the island which had high concentrations of people from different parts of the United States. In the northwest, around the town of McKinley, there was a concentration of people from New York who had purchased land from the Isle of Pines Company. In the Los Indios district was a group of people from Ohio, while in various places along the foothills of the La Canada range of hills were people from Wisconsin, Illinois, and Iowa. In general, though, most of the people buying land on the island were from the Midwest states.

A great variety of friendly competition developed between the various American communities on the island. Few of the earlier settlers really knew a great deal about citriculture; however, farms on one part of the island would vie with those in other sections in trying to obtain maximum yields of fruit. Every effort was made to achieve as American an atmosphere as possible; the land companies

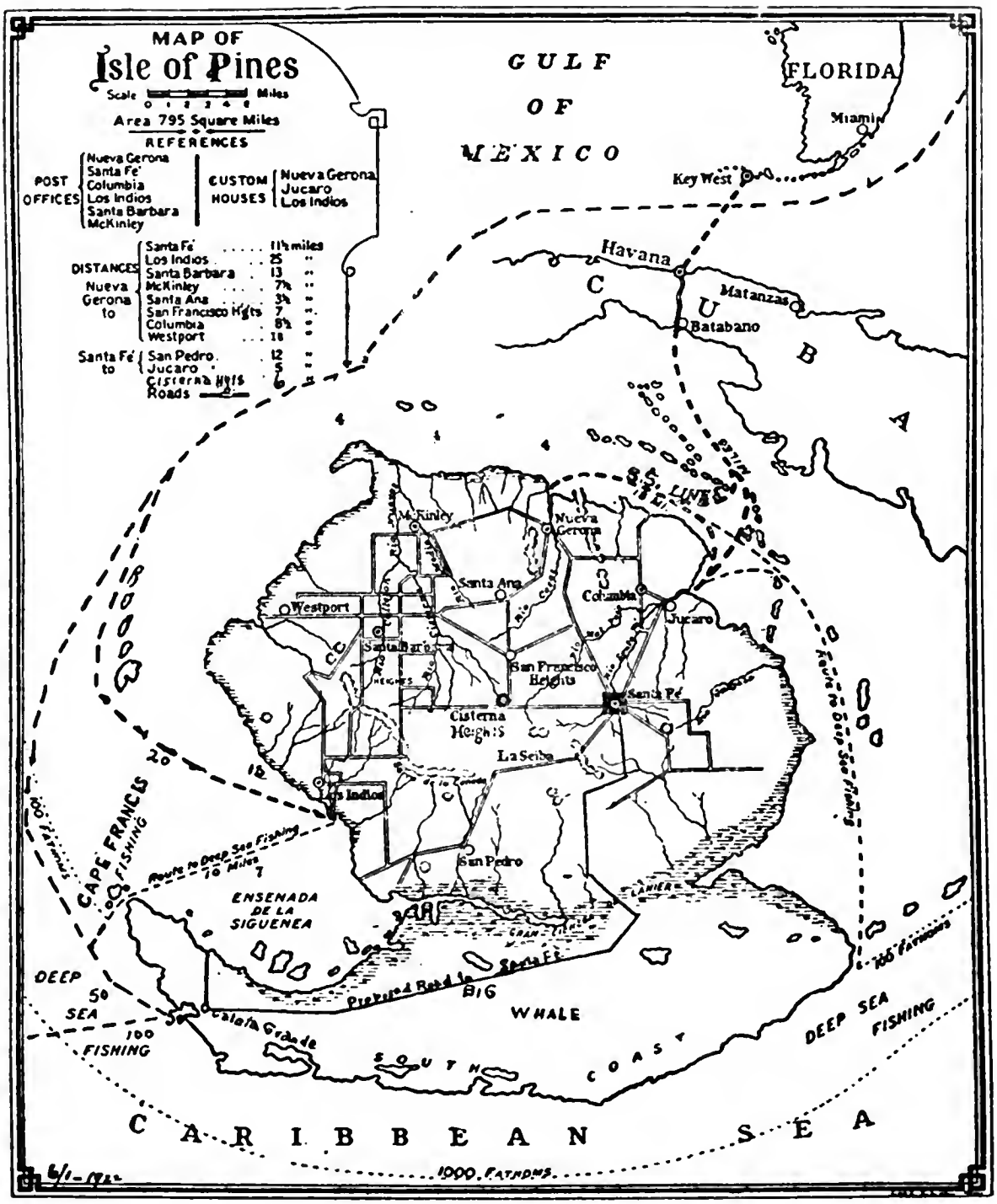

Fig. 11.-- Map published in 1922 by an American land company to promote sale of land.

stimulating the foundation of garden clubs, the American Club, and a host of other organizations which were one hundred per cent American.

The last big year of land company promotion was in 1910. At that time there were $500,000 worth of American investments in buildings and $2,000,000 invested in fruit groves.[33] By then the American community consisted of more than five hundred inhabitants; there were American schools, churches, stores, and even an American weekly newspaper, the Isle of Pines Appeal. It can truthfully be said that, although the island was not politically a part of the United States, it was economically a part. Americans owned virtually all business enterprises, including the banks, and the dollar was considered legal tender. Those Cubans who remained usually found that they had to work for the Americans or go unemployed.

The feeling between the Americans and the Cubans during this period was not cordial. Resentment was continually mounting on both sides. The Americans were rankled at having to obey Cuban laws and pay Cuban taxes, claiming that the tax money never was used for governmental projects on the island. In turn, Cuban officials were galled by the independent attitude of the Americans, who flagrantly disobeyed the laws of the land, maintaining that the island was American and the Cuban officials had no authority. Incidents of violence were common during this period. Americans were arrested for refusing to pay taxes or to buy licenses to operate businesses;

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[33] F. A. Carlson, "American Settlement on the Isla de Pinos," Geographical Review, XXXII (January, 1942), p. 33.

fights between groups of Americans and Cubans occurred, and at one time an American revolt was only narrowly averted. Generally it was a period of uncompromising attitudes, making mutually friendly relations impossible.

Despite the enmity which existed between the Cubans and Americans, the period 1910 to 1917 was one of orderly development. By 1910 the majority of Americans who had arrived on the island with inadequate financial resources or who had been unable to make a financial success out of their groves had returned to the United States. Most of those who remained had learned to cope with the problems of citriculture and many were active in a profitable trade with the United States in grapefruit. Vegetable farming also began to develop, a winter vegetable market being available in many of the northern cities of the United States. The population during this period grew gradually from 3,199 in 1899 to almost 4,000 in 1917. The American community fluctuated in membership, although it had decreased considerably from its peak years, 1908 to 1912, when there were over one thousand to about five hundred in 1917.

Between 1917 and 1920 the island experienced a minor recession. This was brought about by two events which happened in rapid succession. The United States entered World War I in 1917, and people began to leave the island out of fear of being in a foreign country during a period of war. In addition to causing apprehension among certain resident Americans, the war also raised the price of fertilizers, indispensible to the growing of any crop on the island. This created a hardship on the island's fruit and vegetable growers,

Fig. 12.--A home typical of many built by Americans between 1903 and 1917.

Fig. 13.--The former National Loan and Trust Company of Santa Fe. This was a bank built in 1912 by Americans; it is now used as a bar.

because increased production and marketing costs were already hurting them in their competition with Florida growers, and the increased price of fertilizer made the situation that much worse. The second event which dampened American enthusiasm was the arrival of a hurricane in September, 1917 which destroyed thousands of trees. From 100,000 crates in 1917, production fell to 33,000 crates in 1918.

The war and the hurricane retarded the level of the American community only briefly. By 1919 there were 386 Americans living on the island out of a total population of 4,228.[34] Grapefruit shipments to the United States, controlled exclusively by American growers, surpassed 200,000 crates in 1922. At that time there were 10,470 acres of land in groves, valued at $10,470,000. Other land owned by Americans was estimated to be worth $11,280,000 including the value of crops and timber resources upon it.[35] After the termination of World War I, the American land companies resumed their sales campaigns in the United States for, despite the fact that they had already sold vast amounts of property, they had such a large investment in land and improvements that they had to sell even more land in order to realize a profit.

Their sales appeals fell on deaf ears in the United States, for by that time the Florida land boom was under way, and few people wished to make land purchases on a foreign island. By 1924 even the

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[34]Cuba, Direccion General del Censo, Census of the Republic of Cuba, 1919 (Havana, Maza Arroyo y Caso, 1920), p. 183.

[35]Cosme de la Torriente, Mi Mision en Washington (La Habana: Imprenta de la Universidad de Habana, 1952), p. 160.

land companies realized that it was only a matter of time before the United States would officially recognize Cuba's claim to the island, an event tantamount to complete bankruptcy for them.

In 1924 the American population of the island was estimated at 708 people.[36] The majority of this group was a remnant of the group which had come before World War I to live and farm. Of this group a few had sufficient capital to permit them to enjoy retirement; a few others actually had made a success of their citrus groves; the rest were completely discouraged over the current situation. Instead of United States sovereignty being imminent, a treaty confirming Cuba's claim to the island was before the United States Congress and seemed certain to pass. Many who had bought their land at prices inflated by speculative bidding during the early boom days had watched prices fall to a fraction of what they had been previously. The buoyant spirit manifested by the people a decade before was gone. Some Americans living on the island tried to liquidate their holdings in an attempt to salvage some money; others abandoned them and returned to the United States in the hope that in time land values would rise once more.

The worst event occurred on March 11, 1925 when the Hays-Quesada treaty of 1904 was ratified. In the minds of most Americans living on the island today this date marks the end of the American period, for, with the ratification of the treaty, the last hope of

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[36]Charles Forman, A General Description of the Isle of Pines (Nueva Gerona, March 22, 1924), p. 5 (typewritten).

achieving American sovereignty vanished forever. According to Fred Carlson, in an article on this period of the island's history, there were eight reasons why the American settlement declined in numbers and influence: (1) many people bought in ignorance of conditions on the island and were disappointed on arrival; (2) most knew little or nothing of citrus culture; (3) the opportunities for citrus culture were overrated; (4) the settlers had insufficient capital to carry them over until they could begin producing; (5) there was a lack of adequate transportation for moving produce to the United States; (6) World War I sent the price of fertilizers so high that the settlers could not afford to purchase them; (7) there was increased competition from Floridian citrus and vegetable growers, as well as Cuban; and (8) the ratification of the Hays-Quesada Treaty.[37]

The Cuban Period: 1925 to the Present

With the ratification of the Hays-Quesada Treaty in 1925 the flow of Americans leaving the island increased. Each month a number of these people would abandon their farms, arrange either to sell their land, or put it into the hands of a land company or private citizen to manage, or simply permit its ownership to lapse.

Once Cuban sovereignty had been assured, the Government announced the construction of the National Penitentiary, which was to be located a mile to the east of Nueva Gerona. This announcement caused a great deal of chagrin among the residents of the island, both

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[37]Carlson, op. cit., p. 34.

Fig. 14.--The American Central School

Fig. 15.--The National Penitentiary

Cuban and American. The Americans, already disappointed by the loss of all hope of ever attaining American sovereignty for the island, viewed the new prison as a further inducement to leave. Cuban citizens, after all the years they had actively supported the island's identity with Cuba, considered it an affront for their government to build a prison on the island. Bitter protest was registered in Havana, the residents of the Isle of Pines pleading that they did not want once again to have the island suffer the stigma of being a penal island as it had throughout most of the colonial period.

Despite these pleas the government sent prisoners to the island in 1925 to begin construction of the prison, which was to be called the Presidio Modelo (Model Prison), and which would eventually have a capacity of two thousand prisoners. In defense of its plan the Government argued that the prison would employ local residents, purchase local products, and the payroll of the large number of civil servants connected with it would contribute greatly to the island's economy.

On October 19, 1926 the island was hit by its most destructive hurricane, a veritable coup de grace for the disillusioned American community. The devastation wrought by this hurricane amounted to millions of dollars. Many groves were almost totally destroyed, homes were ruined, and a forest fire which followed burned for several months on the South Coast, ravaging many of the remaining valuable timber stands.

One of the aftermaths of the hurricane was a rapid withdrawal of Americans. The American community decreased from almost 700 in 1925 to only 275 in 1931, and even beyond this date it continued to decrease, but at a gradually declining rate. This was due to the fact that through the process of elimination only the most persistent members of the

American community remained. These people were either successful grapefruit growers who continued making a profit after the island had passed under Cuban control, or were retired Americans who continued to live there because they enjoyed its tranquility regardless of government.

The property of those who left was either sold, squatted on by the Cayman Islanders and Cubans, left idle, or placed under the caretakership of a local resident. In many cases, since property values had decreased markedly from the height of the American land boom, aliens who could not find property in Cuba itself, were able to purchase farms on the Isle of Pines. Due to this factor the Japanese, as well as a number of other foreigners, gained title to property.

Following the end of the American Period, a large amount of American absentee owned land was allowed to be reincorporated into the public domain because of non-payment of taxes. Much of this land was eventually sold at public auction or private sale. In this way a few Cuban and American landowners acquired vast holdings on the island for practically nothing. Generally the owners initiated no economic activity on their property, and the island lapsed into an economic dormancy not unlike that experienced throughout the colonial period.

At the time of World War II the economy of the island was further retarded by the difficulty experienced by citrus and vegetable exporters in moving their produce to the United States. The German submarine blockade of the Atlantic Coast made shipments almost impossible. During the war the United States Navy operated a small blimp base near Santa Fe which offered employment to a handful of the island's residents, and in 1942 a small tuna canning factory was opened. With the close of the war the island's economy continued to be depressed,

grapefruit shipments to the United States only partially recovering to prewar levels, while the cucumber shipments increased slowly until 1948. Commencing in 1948 Florida market vegetable growers began to take an interest in the island as a place to expand cucumber production. In that year production increased rapidly, and the island's export rose until in the 1956-57 season it had surpassed 200,000 crates.

Interest in real estate also began to develop at this time. Originally the interest was mainly Cuban, but by 1956 American attention began to be focused on the island. In that year Arthur Vining Davis, an extremely wealthy American who had made large purchases of property in South Florida and in the Bahamas, purchased the entire barrio of Punta del Este, the South Coast. In addition to gaining control of this area, he also purchased almost 90,000 acres of land north of Lanier Swamp.

Davis' purchases on the island, since he is recognized in the United States as an astute businessman, partially explains why American real estate brokers became interested in the island. In a short time property values began to spiral upward, and they have continued to ascend even to this day, although the current instability in Cuba due to the civil war, has somewhat retarded the increase. Several American real estate agencies have subdivided land and have begun to sell lots in many parts of the island. Just as in the earlier American period, a host of different projected hotels have been announced, but only a few have actually been built. In 1957 real estate brokers did sell a large number of lots both to Americans and Cubans, but few owners have begun construction of homes. It is still too early to tell whether the current interest in land is only transitory or whether the island is entering a new era of expanding development.

Fig. 16.--Ruins of a once palatial American home near Santa Fe.

Fig. 17.--Billboards near Nueva Gerona Airport advertising new subdivisions.

CHAPTER IV

THE POPULATION

Any discussion of population of the Isle of Pines must be prefaced by a statement concerning the presence of the Federal Penitentiary, the Presidio Modelo. Since its establishment in 1926 the prison inmates have always been included in the censuses of the island, and have consistently distorted the population figures for the island. Unfortunately, the first two of the three censuses which include the prison population (1931 and 1943) do not specify the total number of prisoners. This omission has hindered the accurate interpretation of past data and has necessitated the approximation of the number of prisoners for these two censuses. For the most recent census (1953), a complete tabulation of the population characteristics of the prisoners has been supplied and it is possible to recompute the census data excluding this element of the population.

Complete census enumerations of the Isle of Pines were made in 1899, 1907, and 1919 under United States assistance, and in 1931, 1943, and 1953 by the Cuban Government. Even during the colonial period there were sporadic enumerations which provided a wide range of demographic information, particularly the Census of 1858. The only difficulty in the use of Cuban census reports has been that there has rarely been a consistent frame of reference used in each enumeration. Thus, for example, in each of the five censuses taken subsequent to

the Spanish-American War, illiteracy was measured in a different manner for each census, making analysis of this particular characteristic difficult.

Another problem in the analysis of the island's population has been the interpretation of its distribution, which perforce must be an integral part of any geographic treatment of the subject. The island is large and has only a small number of inhabitants. The censuses have used the barrio as the smallest civil division enumerated.[1] However, the barrios of the Isle of Pines are too large to be of value in plotting the detailed distribution of the island's population. The author has been forced to turn to other sources in order to determine distribution. Among the sources used were the Census of 1953, a planimetric map constructed for the Census from aerial photography flown in 1952, and the writer's field work on the island. The resultant map (Figure 19) is far from definitive, but it may be regarded as an approximation of the actual distribution of the population, giving a graphic indication of its location and pattern.

The Growth of Population

It is difficult to make evaluations concerning the precensus population of the Isle of Pines. The Indians had either been killed or had departed from the island by the middle of the sixteenth century. Almost immediately after their departure, Europeans and Negroes arrived

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[1] A barrio in Cuba is a minor civil division more nearly the equivalent of a township in the United States.

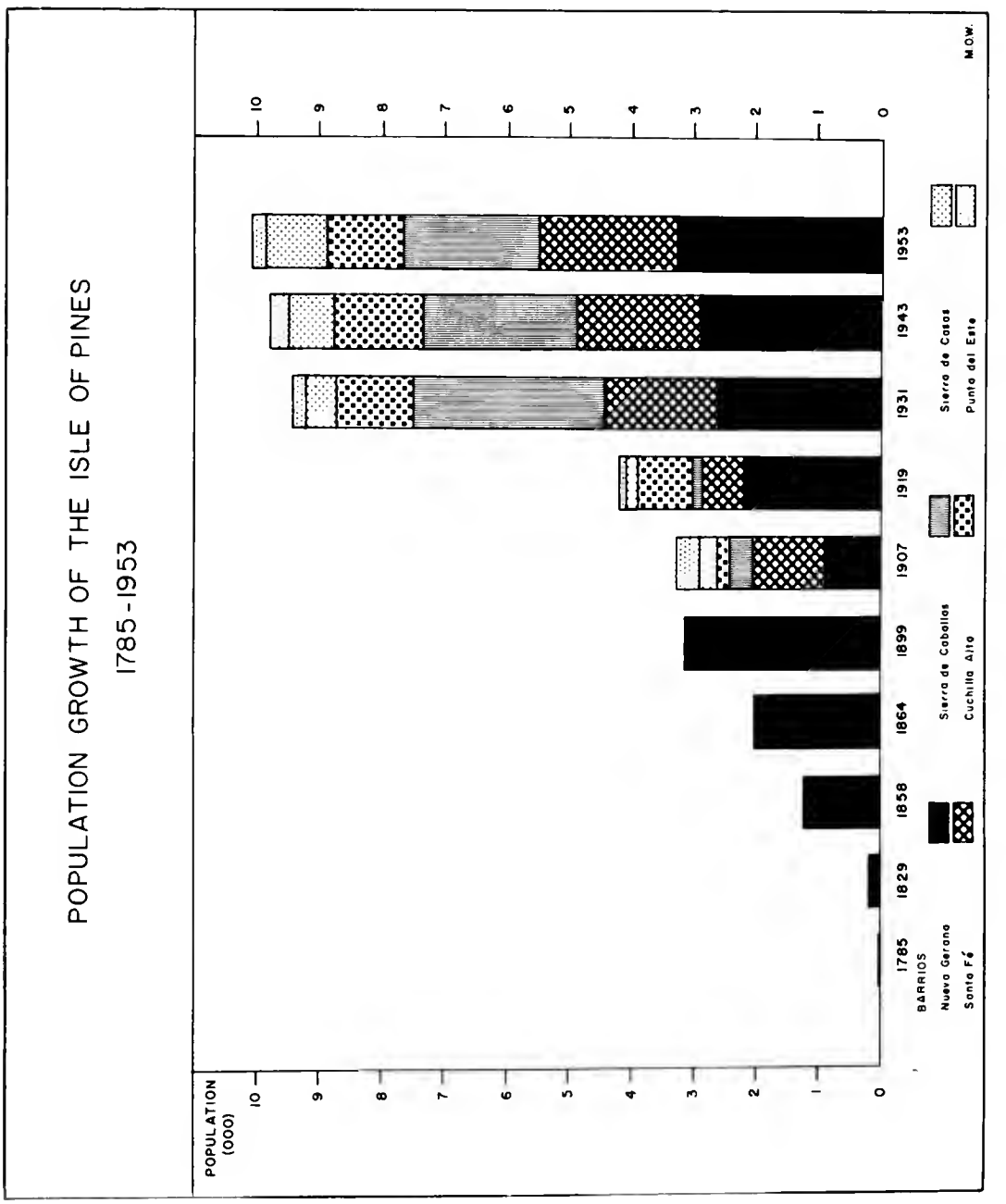
POPULATION GROWTH OF THE ISLE OF PINES
1785-1953
POPULATION (000)
0
1
2
3
4
5
6
7
8
9
10
1785
1829
1858
1864
1899
1907
1919
1931
1943
1953
BARRIOS
Nueva Gerona
Santa Fé
Sierra de Caballos
Cuchilla Alta
Sierra de Casas
Punto del Este
MOW

Fig. 18

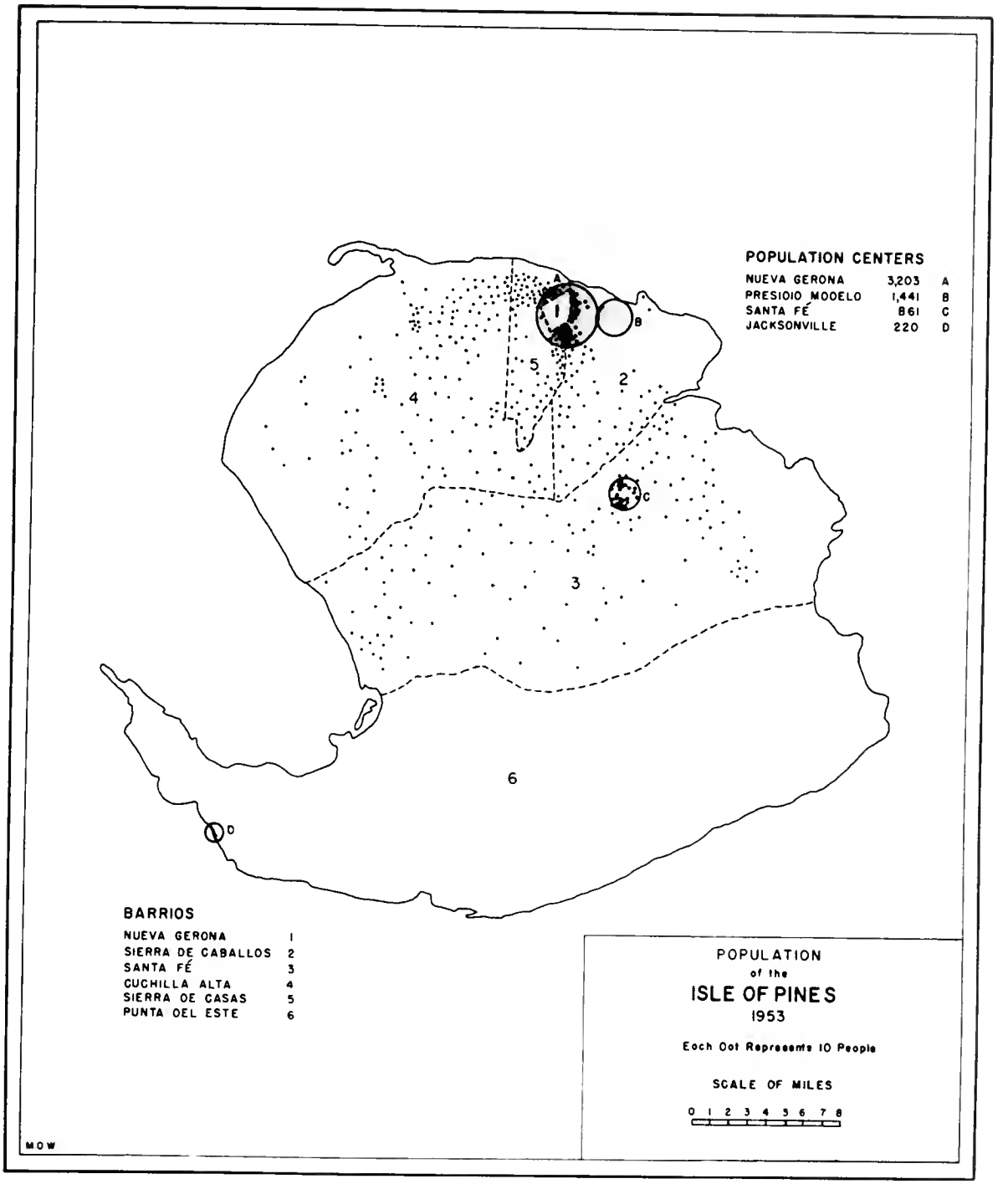
POPULATION CENTERS
NUEVA GERONA 3,203 A
PRESIDIO MODELO 1,441 B
SANTA FÉ 861 C
JACKSONVILLE 220 D
A
B
C
D
1
2
3
4
5
6
BARRIOS
NUEVA GERONA 1
SIERRA DE CABALLOS 2
SANTA FÉ 3
CUCHILLA ALTA 4
SIERRA DE CASAS 5
PUNTA DEL ESTE 6
POPULATION
of the
ISLE OF PINES
1953
Each Dot Represents 10 People
SCALE OF MILES
0 1 2 3 4 5 6 7 8
MOW

Fig. 19

and settled permanently. This group never numbered much more than two hundred in the following two centuries, but it cannot be said with certainty, since population data are not available until 1785. At that time the number of inhabitants on the island was only seventy eight. The validity of this figure also may be questioned, as pirates, criminals, vagrants, and escaped slaves were known to be in residence on the island during the seventeenth and eighteenth centuries, and doubtlessly this group purposely avoided enumeration.

Between 1785 and 1829 the population increased by only 111 people, but during the intercensal period of 1820 and 1831 the island added 238 new inhabitants. The rapid increase within the latter intercensal period was largely associated with the arrival of troops at the island, as well as prisoners, and a handful of colonists who took up land in the Queen Amalia colony that had been established in 1830. Before 1830 migration to the island was practically non-existent because the island was continually being subjected to the depredations of the lawless element there. After that date they had been brought under control.

The trend in population growth continued at a fast rate between 1831 and 1899 because of the continual strife in Cuba. The Isle of Pines had no active part in the revolutions which ravaged Cuba except for serving as a place where the Spanish Government could exile political prisoners and as a refuge for people seeking to escape the troubled areas. A large share of the increase in the island's population during the last half of the nineteenth century can be

attributed to the arrival of these prisoners and refugees.

Between 1899 and 1931, when the population increased from 3,199 to 9,450, two important factors which acted to increase the population of the island beyond the excess of births over deaths. The first was the American land boom and the second was the construction of the National Penitentiary.

The American land boom, which began in the year 1903 and continued until 1925, stimulated a rapid increase in the population. At times during this period the number of Americans who had come to the island to settle numbered over one thousand. Not only did these people contribute to the increase in population, but their presence had much to do with the mass immigration of people from the Cayman Islands, and later indirectly caused a small immigration of Japanese and other aliens.

The second factor, the construction of the National Penitentiary, accounts for much of the 5,222 people increase between 1919 and 1931. Prisoners were brought from the Puerto Principe prison in Havana in 1926 and put to work constructing the buildings. The size of the prison population rose rapidly, reaching approximately 1,500 by 1931. Since that time it has fluctuated between 1,400 and 2,000. Not only was the arrival of the prisoners an important addition to the island's population, but the arrival of the penitentiary staff, their dependents, and a squadron of 150 Rural Guards contributed almost 400 more people to the island's population.

The in-migration of people associated with the establishment

of the prison was the last major movement to the island up to the present time. Today there is actually a movement away from the island, brought about by the better opportunities for employment which exist in the metropolitan area of Cuba. However, this loss has been more than countered by the excess of births over deaths, which largely accounts for the present rate of increase.

Distribution and Density of Population

The first European settlement on the Isle of Pines was located on the limestone plain to the south where a small group of pirates, renegades and escaped slaves found refuge from the Spanish authorities during the first two centuries after discovery. Their settlements were usually located along the coast, as their principal livelihood was from the sea, and they generally ignored the impenetrable hardwood jungles that lay behind the shore. Shortly after the South Coast came to be the haunt of the lawless, the northern part of the island was independently settled by small groups of escaped slaves, criminals, and people from Cuba who were imbued with enough pioneer spirit to settle there. In the northern part of the island, just as in the southern, settlement was along the shores, as the majority of residents were primarily occupied with fishing and turtling.

During the seventeenth and eighteenth centuries the population of the island remained small, but once the land passed into private hands the economy came to be oriented toward livestock; consequently the people moved into the interior where cattle stations were established. By 1826, although there were seventeen cattle stations

on various parts of the northern plain, there were no settlements which could warrant being considered towns. Santa Fe was the largest community, and at that time it was little more than an agricultural village.

With the establishment of Queen Amalia Colony and Nueva Gerona in 1828, the distribution of the island's inhabitants began to shift from the interior of the island to the new colony and town near the northern shore. This movement continued up to the time of the American period, when the trend was arrested because many Americans chose to settle on their property or in small American communities mainly located in Santa Fe and Cuchilla Alta barrios. After the end of the American period the movement to Nueva Gerona was resumed, and today Nueva Gerona and its vicinity are growing at the expense of other areas of the island.

The Census of 1953 gives the population of the Isle of Pines as 10,105 or 0.17 per cent of the total population of Cuba. This figure is remarkably low, yet it becomes even more impressive when one considers that the Isle of Pines is the eighth largest municipio in Cuba, with an area of 1,181 square miles.

The Isle of Pines has the lowest density of population of any municipio in Cuba, 8.56 people per square mile if the prisoners are included, or 7.3 per square mile if they are not. These figures are comparable to those in some of the world's most sparsely populated countries, such as Saudi Arabia, Borneo, or Paraguay, and considerably below the 131 people per square mile, which is the national average

for Cuba.

Such an apparent anomaly in a country as densely populated as Cuba is almost unique, the only areas with comparable densities being a few barrios within the Sierra Maestra mountains in eastern Cuba. The dot map (Figure 19) graphically portrays the distribution of the present population, while Table 1 gives the density of population in each of the barrios.[2]

TABLE 1

DENSITY PER SQUARE MILE OF BARRIOS, ISLE OF PINES, 1953*

Barrio	Square Miles	Population	Density
Punta del Este	482	259	.55
Santa Fe	347	2,195	6.40
Cuchilla Alta	266	1,208	4.50
Sierra de Casas	59	968	16.40
Sierra de Caballos	25	2,184	87.30
Nueva Gerona	2	3,291	1,645.00
Total	1,181	10,105	8.56

*Computed from: Cuba, Censo de Poblacion, 1953, Table 7.

From the map it can be seen that almost all of the people of the Isle of Pines live in that part of the island north of Lanier

[2]Cuba, Oficina Nacional de los Demograficos y Electoral, Censos de Poblacion, Viviendas y Electoral, Enero 28, de 1953 (La Habana, P. Fernandez y Cia, 1955).

Swamp. Less than 2.5 per cent of the inhabitants reside in the island's largest barrio, Punta del Este, where the density falls to 0.55 per square mile. Actually, the entire barrio, but for the small community of Jacksonville, is virtually devoid of population. The reasons for the paucity of people are both physical and cultural. Physically, the lack of well developed soils on the limestone plain has prohibited commercial agriculture. Culturally, the barrio has been controlled through history by a succession of large landholders who have impeded settlement of crop farmers. At present it is held in its entirety by an American, and the citizens are allowed to remain at his pleasure.

Santa Fe, the second largest barrio, has the third lowest density of population, 6.4 per square mile. The majority of people reside in the eastern part of the barrio, particularly in and around the agricultural village of Santa Fe. Just as in Punta del Este, the pattern of the distribution of settlement has been restricted by tenurial arrangements. Several large estates are found within Santa Fe, one of which comprises almost one-fourth the entire barrio. These estates are among the major latifundia of the island, and have served for years as effective deterrents to the settling of the land.

The third largest barrio, Cuchilla Alta, has the second lowest density of population, 4.50 per square mile. Settlement here is entirely rural, although there are two small agricultural villages. Unlike the other barrios, Cuchilla Alta has a higher percentage of its land in small holdings, especially concentrated in the Santa Barbara

and McKinley districts. Within these two small localities the majority of the barrio's inhabitants reside. The southern part of the barrio is almost devoid of population due to the presence of large holdings as in Punta del Este and Santa Fe barrios. The western part is sparsely populated due to the presence of coastal swamps and a low coastal plain that is continually subjected to inundations after rains.

Sierra de Caballos, the fourth largest barrio, deserves special consideration. It is the home of the Presidio Modelo, and consequently has two distinct population groups, the prisoners and the free inhabitants. Together the barrio has a total of 2,184 people or 87.30 per square mile. Of the total population, 66 per cent are confined within the prison, and an additional 7 per cent are troops and prison personnel who live just outside. Most of the remaining 27 per cent of the population is located along the banks of the Las Casas River near the town of Nueva Gerona. In addition to the population cluster near Nueva Gerona, there is a second cluster near the mouth of the Jucaro River, at the site of the old town of Columbia, where a small group of Japanese farmers is residing. The land within the interior of the barrio is mainly held by the prison for use as prison farms; land in the northeast is low and non-arable.

Sierra de Casas, the fifth largest barrio, with 16.4 people per square mile, is the third most densely populated. This barrio has acted to relieve the pressure of people in the town of Nueva

Gerona, which has been expanding beyond its barrio boundaries for many years. Aside from settlement peripheral to Nueva Gerona, there is a concentration of people along the Las Casas River in response to the better alluvial soils found there as well as to its scenic location.

Nueva Gerona deserves little discussion in regard to distribution and density of its inhabitants, since it is only two square miles in area and at the present time has a population of 3,291. The barrio is entirely urban and has attained sufficient size that some of its population has had to spill over into the two surrounding barrios of Sierra de Casas and Sierra de Caballos.

Place of Residence

The place of residence is the first aspect of the composition of the population to be discussed. The Cuban census has only interpreted residency in two ways, urban and rural. In the censuses of 1931, 1943, and 1953 people classified as living in urban areas were those who lived in houses that had a street number, or who lived on a street that had a name. In 1953, in addition to the old method, a new definition was used. In that year urban residents included all people living in communities of 150 or more people, where electric current, medical and legal facilities were available, or in communities which "had a functional relationship or interdependence" with a town that had these facilities.[3]

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[3]Cuba, Censo de Poblacion, 1953, op. cit., p. xv.

Using the old definition and excluding the prisoners, in 1953, 58 per cent of the total number of residents were living in an urban community; under the new definition the percentage dropped to 47 per cent. The difference between the two percentages can be attributed to the fact that under the old definition a number of small agricultural villages were included within the urban area, while under the new definition of 1953 only two towns, Nueva Gerona and Santa Fe, with populations of 3,203 and 861, respectively, were included.

The concepts of what constitute urban or rural populations are many and varied. Both of those used by the Cuban census fail to emphasize the degree to which the Isle of Pines is actually rural. In reality, the figure arrived at under the new definition, which is an improvement over the old one, is still too large. There is only one truly urban community on the island, which is Nueva Gerona, the economic, cultural, and social center of the island. Santa Fe, with less than 1,000 inhabitants, cannot actually be classified as an urban community since in addition to its small size the majority of its work force is employed in agriculture. If the population of Santa Fe is excluded, the percentage of urban residents on the island decreases to only 37 per cent of the entire population.

Racial Composition

The following table indicates the relative importance of the white, Negro, yellow, and mulatto elements of the population.

Fig. 20.--Calle Marti, the main street of Nueva Gerona.

Fig. 21.--Airview of Nueva Gerona

TABLE 2

PERCENTAGE OF PEOPLE BY RACES, 1953*

	White	Negro	Yellow	Mulatto
Isle of Pines**	82.0	11.1	1.75	5.2
Cuba	72.8	12.4	.13	14.5

*Source: Cuba, Censo de Poblacion, 1953, op. cit., Table 20.
**Prisoners excluded.

The Isle of Pines is predominantly white in composition, having a higher proportion than in Cuba. The low percentage of colored is due to the agricultural history of the island. Unlike the sugar growing regions of Cuba, the Isle of Pines never developed a highly productive commercial agricultural base and consequently few slaves were ever introduced. In 1899 the Negro and mulatto populations combined constituted only 16.3 per cent of the total population. Since then the percentage has varied from 10.1 in 1907 to 20.6 in 1943.

The colored population of the Isle of Pines is primarily of Cayman extraction, although not all Caymans who came to the island were Negroes or mulattoes. These people have been assimilated to a high degree, but it is still possible to hear among older people the clipped English accent typical of the British West Indians. Their children are usually bi-lingual, if both the parents are West Indian, or if only the mother is; rarely so if only the father speaks English.

Another distinctive element of the population on the Isle of Pines is its large concentration of Orientals. In 1953, 1.75 per cent of the population was Oriental compared with a national average of 0.3 per cent. There was a total of 159 Orientals at that time, approximately 25 Chinese and the remainder Japanese. The Chinese are definitely the older group in time of settlement, 10 having been enumerated in the Census of 1858. Since then there have always been Chinese living on the island, many having been secretly smuggled in from Jamaica during the twentieth century. It was not until 1924 that the first Japanese arrived. The Census of 1931 reported 62 Chinese and 136 Japanese. Since 1931 the Oriental population has been gradually declining. The Chinese have intermarried with the Cubans, and their children have been enumerated as white. The Japanese have not acculturated as completely as the Chinese have, and due to a scarcity of Japanese women on the island they have not been producing in numbers sufficient to reproduce themselves. Today, thirty years after their arrival, many of the Japanese are hardly able to speak Spanish.

The mulatto has no place in a racial classification, being a group that no two people can agree as to what it should comprise. Selection appears to be up to the individual census enumerator as to the intensity of color which constitutes a Negro, mulatto, or white person. According to the data of the 1953 census the Isle of Pines has an appreciably smaller mulatto population than Cuba. Undoubtedly much of this has had to do with the recent arrival of the mulattoes

from the Cayman Islands, and the fact that before their arrival there were few mulattoes present on the island.

Foreign-born Inhabitants

The Isle of Pines has been the home of a wide assortment of foreigners throughout most of the twentieth century. Even during the nineteenth century there were a number of Cayman Islanders living along the South Coast of the island, as well as several Chinese who migrated to the island in the middle of the century. Since the Spanish-American War the percentage of foreign born people in Cuba other than Spaniards has never risen above 4.5 per cent and usually has averaged about 2.7 per cent. On the Isle of Pines the percentage rose to 20.6 per cent during the 1919 census and has usually been about 15 per cent.

The first large group to arrive were the Americans who began to arrive in large numbers after 1903. By 1907 Americans comprised 13.4 per cent of the island's population, or 438 people. Between 1907 and 1919, which was the year of the next official census, the American community swelled and waned several times. Several Americans living on the island today estimate that at times during this period the American population surpassed 1,000. Usually though, except during the winter months when the climate attracted a number of vacationing Americans, their numbers rarely were larger than 600. By 1919 the American population had decreased to only 385, and except for a brief rise during the years 1923 and 1924, it gradually decreased until 1955. In 1955 there were only about 125 Americans living on

the island, and a number of them had actually been born there. Since that date there has been a small immigration of Americans to the island who have arrived with the new interest in land. These new arrivals number approximately 50.

Cayman Islanders have been living on the island periodically since the seventeenth century. However, it really was not until the arrival of the Americans that citizens of this British colony began to migrate to the island in great numbers. The major inducement for migration was overcrowded conditions in the Cayman Islands, as well as the knowledge among these people that there was ready employment for English speaking people in American enterprises on the Isle of Pines. Census data never has specified the number of Cayman Islanders on the Isle of Pines, but it is likely that the first important migration began in the year 1906 when boats began to operate between the Cayman Islands and the Isle of Pines. The number of Cayman Islanders grew rapidly on the island, and by 1919 they probably numbered over four hundred. The 1931 census lists 1,005 British subjects on the island; since the number of Canadians and English was known to be small, it can be assumed that the Cayman population must have been greater than 900. Since then there has been no migration from the Cayman Islands due to more rigid immigration regulations established by the Cuban Government. Consequently, their numbers are gradually decreasing.

Beginning in 1924 the collapse of the American land boom and the subsequent drop in the price of land on the island attracted a

number of immigrants from other nations. The Japanese were the largest group to arrive, there being 126 in 1931. Also, it was in the period immediately after many of the Americans abandoned their lands and left that small groups of Italians, Germans, Poles, Hungarians, and Russians arrived. The majority of these people resumed farming where the Americans had stopped.

Today it can be assumed that the foreign born population of the island is decreasing. Since the early 1930's there has been no important immigration of foreign born aside from the approximately 50 Americans who have arrived since 1955 in response to the new, but minor, land boom.

Education

Public education is a constitutionally guaranteed privilege in Cuba, and laws have been enacted requiring school attendance for all children up to the age of fourteen. Unfortunately, the Cuban Government has, in the past, failed to provide enough schools so that all the children of the island could attend. Since World War II prosperous economic conditions in Cuba have meant a large expansion in the school building program, and conditions have been ameliorated considerably.

The Cuban school system has four levels. The first level is the primary, which includes the first six grades. Beyond the primary school there is a two year upper primary school (escuela primaria superior). The third level is the secondary school, which offers a four year course. Finally, there is the university, of which there

are several in the larger cities of Cuba.

The Isle of Pines has public schools of the primary level in the principal communities, such as Nueva Gerona, Santa Fe, Santa Barbara, and Jacksonville, and several rural schools in the more sparsely populated barrios. In addition to the primary schools, there is an upper primary school in Nueva Gerona which offers two more years of public instruction beyond the sixth grade. Aside from the public schools there is a parochial school in Nueva Gerona operated by the Catholic Church that offers instruction for six grades, and the American Central School near Santa Barbara, an anachronism from the era of strong American influence, which gives instruction in English through the twelfth grade. Today the American School serves few American students, mostly children of the more affluent Cubans living on the island.

The Isle of Pines, despite the fact that it is highly rural, has a much higher proportion of children attending school than rural Cuba. On the island 62.6 per cent of the youths 14 and under were attending school in 1953 compared with 57.5 per cent for Cuba.

The difference in the percentage of school attendance between the rural and urban districts of the Isle of Pines is great; 73.4 per cent of the urban children 14 or under are enrolled in school, compared to only 48.4 per cent for rural children. This situation has been brought about by the relative lack of importance the Cuban Government has placed upon rural education, an indifference among rural people to have their children educated, and the great distance

which separates many of the rural children from the nearest school. Both the parochial and American Schools provide bus transportation for their students; however, the public schools do not, and in many cases children are deprived of an education because they cannot reach the school. Despite this poor attendance by rural youths, the Isle of Pines rural school program is better than that of Cuba, where only 23.4 per cent of the youths under 24 attend.

A discussion of education would be incomplete without mention of a basic measure of educational standards, the percentage of illiteracy. The Isle of Pines illiteracy rate is much lower than that of Cuba, as can be seen in Table 3. This has been caused by a much lower rural illiteracy rate on the Isle of Pines than in Cuba, where there are certain municipios in the eastern provices that have 60 per cent rural illiteracy.

TABLE 3

ILLITERACY (BY PER CENT) IN THE POPULATION OF CUBA AND THE ISLE OF PINES, AGE TEN AND OVER, 1953*

	Urban	Rural	Total
Isle of Pines	12.4	22.4	17.0
Cuba	11.6	41.7	23.6

*Source: Cuba, Censo de Poblacion, 1953, op. cit., p. 149.

Occupations

It is impossible to use the data provided in the 1953 census to determine the relative importance of different occupations on the Isle of Pines, because they include the prison population. However, even without census data it is unmistakably clear that the majority of people are either directly or indirectly employed in agriculture. Aside from a relatively small number of people connected with the prison, the soldiers garrisoned on the island, service workers, people employed in commerce, and transportation, and manufacturing, most of the work force is at work in some agricultural activity.

Although the land on the Isle of Pines is generally low in fertility when compared with much of the agricultural land in Cuba, there are few places within the nation where it has been so readily available for settlement. The virtual vacancy of the land on the Isle of Pines since the days of the American land boom has meant that in the past anyone who might desire could find a small amount of land to farm. The question of ownership has rarely played a major role in preventing settlement, and in 1945 fully 40 per cent of the farms on the island were held by people who did not have valid title to them.[4]

Most of the farmers on the island produce at the subsistence level. They generally farm casually and will accept employment elsewhere if it is available; many of these subsistence farmers leave

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[4]Cuba, Ministerio de Agricultura, Memoria del Censo Agricola Nacional, 1946 (La Habana: P. Fernandez, 1951), p. 412.

their plots each year to participate in the citrus picking season, or vegetable production in winter, or in any other seasonal agricultural activity which might arise. Due to the fact that the most of these agricultural workers are not truly landless farm laborers, but usually own a small plot of land, they have been considered farmers and thus were actively employed during the Census of 1953. In that year the Isle of Pines had only 1.6 per cent of its total work force unemployed, while the national average was 9.2 per cent.[5]

The second most important category of employment is in services. The Isle of Pines has a large number of people under this classification due to the fact that the National Penitentiary is located on the island. A total of over 150 civilian employees are attached to the prison. Also, the government has garrisoned a squadron of 140 men on the island. Aside from civil servants and the military, there are a great many women employed in domestic services as well as workers of both sexes working in various capacities within the tourist industry. In addition to these types of employment the docks of Nueva Gerona employ more than forty stevedores during the height of the citrus and winter vegetable seasons.

The small amount of manufacturing that is done on the island is either connected with the fishing industry, agriculture, forestry or mining. During the height of the fishing season the number of women engaged in canning fish may reach 200, but usually the figure is seldom more than 125. The agricultural industries, mainly citrus

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[5]Cuba, Censo de Poblacion, 1953, op. cit., Table 43.

and vegetable packing plants, employ 100 to 200 people during their short shipping seasons. Industries based on forest products and minerals involve less than 50 workers, entirely male.

The color line on the Isle of Pines is not as highly developed as it is in the United States. Opportunity is open to the colored in most every segment of the economy. Although the census does not provide data which are helpful in analyzing racial participation in different occupations, the author has observed several activities where few colored people were employed. Negroes and mulattoes seem to be almost completely excluded from commerce, except for the most menial jobs. Only rarely can one see colored people in the capacity of sales personnel or proprietors of stores. These positions are usually open only to the whites and Chinese. Also, other activities in which the colored are not well represented are civil service, fishing, and the professional services.

Recently, with the reawakening of American interest in real estate on the island, many Americans have begun to return, some staying to build homes, while a few have commenced to farm. The return of the Americans has opened new opportunities for the colored population, which is mainly comprised of English speaking people of Cayman background. Many of them have sought employment with the Americans because of their ability to speak English, and today they have a definite advantage over the non-English speaking inhabitants in obtaining jobs in the tourist industry or with the Americans who are building homes or farming. At the present time the most

successful taxi drivers are Negroes. Because of their knowledge of English they not only can attract a greater share of the American tourists but some sell real estate as a sideline.

As previously mentioned, the Oriental population on the Isle of Pines consists of both Japanese and Chinese. The Japanese are almost 100 per cent rural, while the Chinese are generally urban. Just as in Cuba, the Isle of Pines Chinese have been especially active in the grocery business, and they operate several shops in Nueva Gerona, one in Santa Fe, and another in Santa Barbara.

Religion

No figures are available concerning the religious affiliations of the people on the Isle of Pines. Cuba has never taken a religious census, and it is impossible to obtain accurate statistics about church attendance on the island, as the majority of citizens are only nominally associated with any sect and attendance is very irregular. However, some qualitative information can be furnished in view of the fact that quantitative data are unavailable.

The Isle of Pines probably has a greater proportion of Protestants than any municipio in Cuba. This Protestant infusion was made when the Americans and Cayman Islanders immigrated to the island. The majority of both these groups were members of various Protestant denominations. Furthermore, many Americans who arrived in the early part of the century were imbued with an evangelical zeal to convert the resident Cuban Catholics to Protestantism, and in some cases actually were successful.

Shortly after the arrival of the Americans a Baptist Church and Methodist Church were built in Nueva Gerona, as well as several other churches in now defunct American communities such as Columbia and McKinley. Several of these churches actually held services in Spanish in the hopes of attracting Cubans. Today there are Methodist, Baptist, Lutheran, and Pentacostal Churches in Nueva Gerona, a Lutheran Mission in Jacksonville, and a Pentecostal Church at McKinley. The Pentecostal and Lutheran Churches mainly serve the Cayman population who, although they usually arrived on the island as Presbyterians, have been converted to these two faiths.

Despite the relatively high percentage of Protestants, Catholicism is still the predominant religion of the residents of the Isle of Pines. There are a number of churches throughout the island, as well as a parochial school in Nueva Gerona where a staff of nuns and a priest give instruction to over two hundred children. Just as in the rest of Cuba, although it does hold the dominant position as far as membership is concerned it enjoys no special privileges not enjoyed by other churches.

CHAPTER V

AGRICULTURE

Agriculture is the principal industry on the Isle of Pines; other activities have grown in importance in the past two decades, but agriculture still contributes over two-thirds of the island's income, and employs about three-fifths of the labor force. Furthermore, even if the fishing industry and tourism should expand markedly, agriculture will probably continue to remain the dominant economic activity on the island.

Land Use

In 1945 the Isle of Pines had approximately 80 per cent of its total area in farms, or over 600,000 acres, divided among 319 units.[1] The majority of farmland on the island is put to a low economic use. At the time of the census, 52.3 per cent of this land was in forest, the hardwood forest on the South Coast representing two-thirds of the total, the pine savannas which are found extensively on the northern side of the island representing the remainder. Pastures amounted to 18.9 per cent of the total farmland, while only 0.7 per cent was in actual cropland. The remainder, 29.5 per cent, included nonarable lands such as the coastal swamps and the

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[1]Cuba, Ministerio de Agricultura, Memoria del Censo Agricola, 1946, op. cit., p. 338.

Lanier Swamp, areas infested with the weed Marabu (Dychrostachys nutans), and land occupied with buildings and roads.

The high proportion of land devoted to pastures does not mean that the livestock industry is highly developed on the island, for these pastures are almost entirely composed of unimproved savannas, barely able to sustain small herds of semi-wild cattle. The forest resources are poor despite the high proportion of land in forests; most of the forests have been highly cut-over or are composed of low grade timber. Of the 4,100 acres of land devoted to crops in 1945, grapefruit groves comprised 24.2 per cent. This was followed by 8.7 per cent of cropland in sweet yuca, 8.2 per cent in sweet potatoes (boniato), and 4.1 per cent in melons. Other crops grown on the island include oranges, cucumbers, rice, and beans. Aside from grapefruit, cucumbers, and melons, the cultivated area is mainly devoted to growing food for local consumption.

Size of Holdings

From the discussion of land use it should be clear that farmland on the Isle of Pines is put to an extremely low economic use. In most of Latin America idle land is synonymous with large landholdings, i.e., the latifundia. The Isle of Pines is no exception to this rule. In 1945 the average farm on the island was in excess of 1,900 acres, or more than thirteen times the national average.

Despite the presence of great holdings on the island, there are a number of small ones as well. At the time of the agricultural census 23.2 per cent of the farms were 24 acres or less. However,

at the same time 22.6 per cent were over 250 acres. This would compare with a national average of 39.1 per cent of the farms under 24 acres and 7.9 per cent over 250 acres in size.

Large estates are found in all parts of the island, but they are most conspicuous in the barrios of Santa Fe, Cuchilla Alta, and Punta del Este. The latter barrio is actually held in its entirety by a single owner, while in the other two several estates are larger than 2,500 acres and one is over 50,000 acres. Small farms are concentrated near the villages of Nueve Gerona and Santa Fe, but they are also found in many scattered sections of the island.

Land Tenure

The system of landholding on the Isle of Pines is not the same as that in Cuba. Whereas in Cuba the owner-operator is the largest group of landholders, on the Isle of Pines the squatter has, until recently, been the most important. Even a cursory examination of Table 4 reveals the great prevalence which the squatter played in the agricultural economy of the island in 1945.

The reason for the different tenure groups on the two islands has been due to differences in the traditional attitudes which landowners have held in regard to their property. Most of the farmland in Cuba is rich, and over the years a dense agricultural population has developed a highly complex agricultural economy. On the Isle of Pines the land has always been infertile and property values have usually been low. Further, over the years many owners have shown such an indifference to their property on the island that for long

periods they did not even live there, and the land was permitted to remain unused, often without even benefit of an administrator. This attitude has been an open invitation to the squatter to settle on the unused land.

TABLE 4

FARMS ACCORDING TO TENURE, ISLE OF PINES, 1945*

	Number of Farms	Per Cent of Farms	Acres	Per Cent of Acreage	Average Size of Farm
Squatter	128	40.0	183,000	30.1	1,430
Owner	124	39.0	19,500	3.2	157
Administrator	32	10.0	390,000	65.3	2,200
Renter	27	8.5	7,800	1.3	290
Other	8	2.5	920	0.1	115
Total	319	100.0	601,220	100.0	1,890

*Computed from: Cuba, Memoria del Censo Agricola Nacional, 1946, Table 10, p. 410.

Beginning about 1830 a steady procession of people arrived on the Isle of Pines, driven from Cuba by the pressure of population on the land resource, and attracted to the island by the availability of large tracts of idle land. These settlers squatted in many sectors of the northern side of the island; they began to farm small plots on the latifundia, undisturbed by the owners, or their managers, and usually living from hand to mouth. At the time that most of the

property on the island was purchased by the American land companies these squatters were evicted. They either went to Cuba, or they sought employment in the villages, or they worked for wages on the farms of the Americans. However, this interruption was only brief, because by the mid-1920's, after the American era had come to an end, many were able to squat on the land and resume farming, just as they did prior to the arrival of the Americans. At that time the original Cuban squatter group was augmented by Cayman Islanders, who had originally been attracted to the island because of the employment opportunities with the Americans. Once the Americans left, these people joined the Cuban squatters, simply moving onto the abandoned farms and utilizing the deserted homes.

By 1945 the Agricultural Census enumerated 127 squatter-operated farms which covered 74,133 hectares (183,108 acres). In reality the census figures distort the total acreage of squatter-held land since it also includes property where ownership was in dispute at that time. In 1945 this included a great deal of property on the island, but involved only a handful of farms. Actually the squatters rarely have holdings which exceed one hundred acres.

Geographically the squatter is distributed in most parts of the island. Areas of high concentration are in places where the former American farm population was highly concentrated, particularly around the village of Santa Fe and in the Santa Barbara and McKinley districts. However, they are also found in many other places, including even remote districts.

The number of squatters probably decreased between 1945 and 1957. In 1945 the island was still in the depths of an economic depression which had beset it from the time that the Americans departed. In 1955 the new interest in property generated by American and Cuban real estate brokers began to inflate the land prices just as had happened during the original land boom in the earlier part of the twentieth century. Squatters have been faced with almost the same situation which accompanied the last land boom, and many attempts have been made to evict them from their land. Since the early twentieth century the Cuban Government has enacted laws to protect the rights of these squatters, provided they can prove occupancy and economic exploitation for a period of seventeen years. This has meant that many squatters, when attempts are made to evict them from the land, have been able to gain title to it by invoking their "squatter's rights." It appears likely that the squatter group has been diminishing in importance on the island since property values have been increasing, and a number have received title to their land and have become owner-operators.

Traditionally the farmer who actually owns and manages his farm has never been a powerful force on the island. For the first 150 years after the original grant there were no owners who lived on the island, and few even visited their property. At that time the land was often allowed to remain in the latifundia, usually without even an administrator to manage it. The first owners actually to arrive on the island to operate their land appeared at the close of

the eighteenth century. At that time several owners commenced operating a few of the vast haciendas which comprised the only economic units on the island. In 1829 the government established the Queen Amalia colony in an attempt to stimulate the settlement of small-scale owner-operators, but this colony never achieved great success. It was during the short period of American settlement that the owner-operator achieved his greatest importance on the island. During this period there were times when the number of owner-operators reached five hundred, generally Americans engaged in citriculture.

In 1945 there were 124 widely scattered owner-operated farms on the island. There is a degree of concentration in the vicinity of the villages of Nueva Gerona and Santa Fe, as well as in the Santa Barbara district. Those owner-operated farms surrounding the village of Nueva Gerona are generally part time operations, the owners supplementing their earnings from urban employment by raising vegetables or a few head of cattle. Usually owner-operated farms are small, rarely exceeding one hundred acres, but there are a few large estates owner-operated.

By far the largest area of farmland on the island since it was first settled has been controlled by salaried administrators. In 1945 thirty-two farms with a total area of 390,000 acres were administrator-operated. The rise of the administrator group has been in response to the low esteem owners have placed on property on the island. Through the years a majority of owners have resided

in Cuba and appointed men to care for their property. Most administrators have been little more than caretakers and rarely have initiated any economic activity. However, recently there has been some attempt to promote agricultural development, and several large estates have actually begun to enter into commercial livestock production. Generally, though, the administrated lands remain idle, the caretaker only seeing that lumber is not removed from the forests or that squatters do not settle on the land.

The remaining two types of tenancy, renter and sharecropper, occupy a combined total of 11 per cent of the farms, but only control 1.4 per cent of the farmland. Both types are generally associated with a higher intensity of land utilization than is normally present on the island. Most of the renters and sharecroppers are engaged in the winter vegetable business, several being Americans who have come down from the United States to raise cucumbers during the winter.

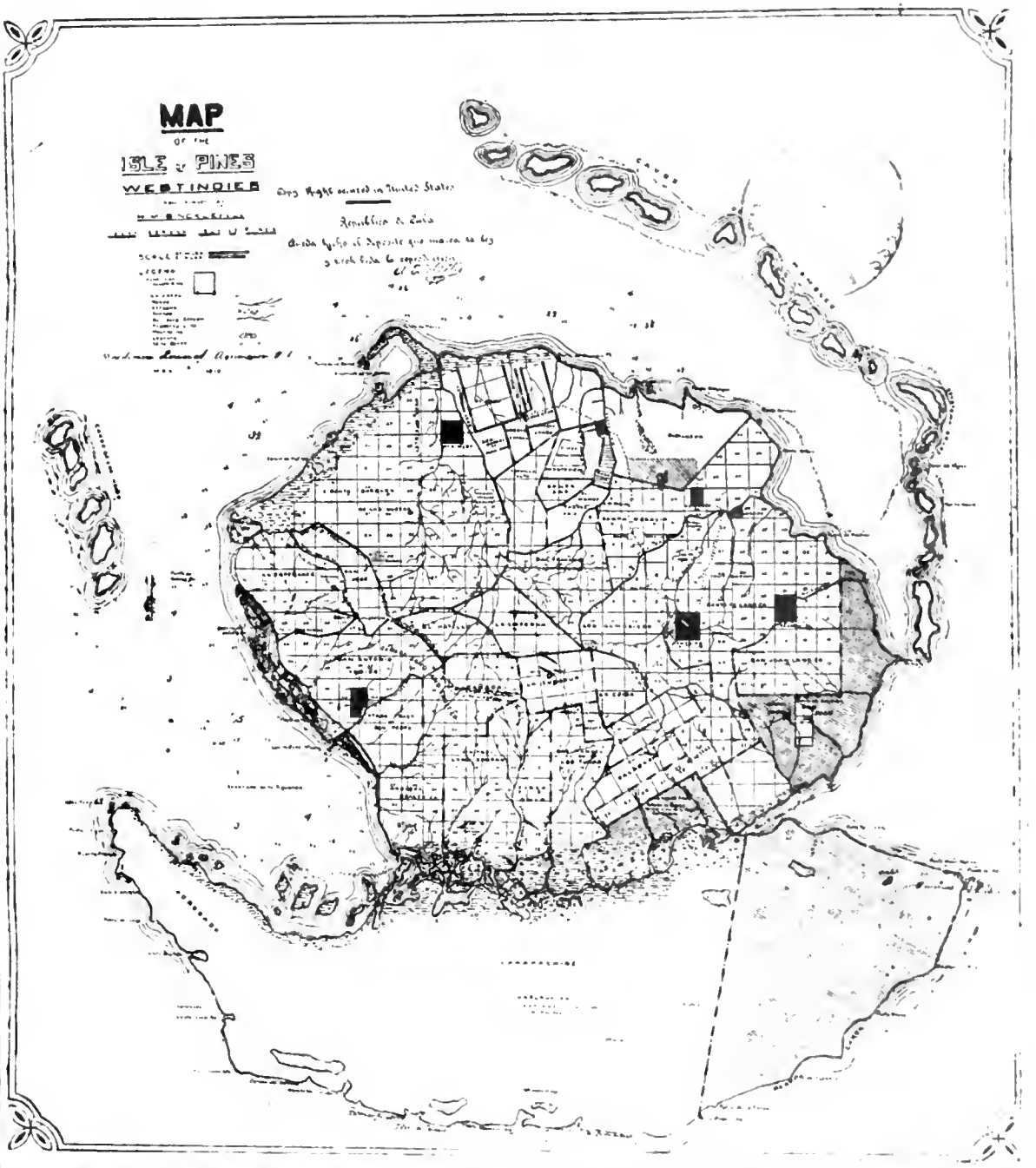
Property Boundaries

Property lines on the Isle of Pines have been poorly delimited through most of its history. Although disputes did not arise immediately, because it was granted as a single unit, it was only a short time before fragmentation began. The original boundaries, which defined the large haciendas, were crudely fixed by a system of metes and bounds, probably by mutual consent of the various owners. Over the years these boundaries became confused and were the source of continual litigation among the heirs of the original owners. Some land disputes continued for decades before they were resolved, and

some created bitter feelings among the families who owned property on the island, in spite of the fact that the island's land was of such small value.

It was not until the close of the Spanish-American War and the arrival of the Americans that land disputes were temporarily resolved. At that time the land companies, with their large reserves of money, were able to gain control of most of the land on the island, despite the fact that some property had been in dispute for so long. Once the Americans took possession of the land they introduced a rectangular grid system in order to facilitate the sale of land. It was their desire to sell property in ten- to forty-acre lots, and a grid system was devised to facilitate such division. The system established had a high degree of accuracy, based on bench marks and a triangulation network. Since the acre was the basic unit of the new system of land division, the English system of measurement superseded the metric system of property description. It has been said that during the American period land disputes became practically non-existent, such was the accuracy of property descriptions.

Unfortunately, in the intervening years between the end of the American period and the present day the orderly land system has degenerated considerably. Because of the indifference with which the absentee landowners have regarded their holdings, many people have come in and squatted on the land. Not only has squatting been common, but large areas of land were allowed to return to the public domain because of non-payment of taxes, and this land has since been



THE SHADED SQUARES REPRESENT TOWNS. THE OTHER SHADED AREAS THE LANDS OWNED BY CUBANS. WHICH INCLUDE VERY LITTLE OF THE ARABLE LANDS OF THE ISLE.

Fig. 22.--Map of the Isle of Pines showing grid system adopted by Americans to facilitate sale of land.

purchased by wealthy landowners on the island or in Cuba. Complex legal problems have arisen from the presence of squatters on property who invoke their "squatter's rights" in an attempt to retain it and from the problems which have developed when absentee owners have returned and found their lands sold for non-payment of taxes. Not only has this caused trouble, but property descriptions are now poorly recorded, and the benchmarks which were so carefully placed at the beginning of the century have either been moved or removed completely. It is believed that this was done by some unscrupulous people who wished to acquire land by confusing the system of land division. In this respect they have, to a great extent, succeeded. Today it is becoming increasingly difficult to buy land with a clear title. Since there is a new interest in property on the island, and many people wish to effect property transfers, the problem becomes more and more complicated.

Types of Farms

The 1945 Agricultural Census classifies the farms on the Isle of Pines into eleven categories. These categories have been consolidated into the five principal types of farms shown in Table 5. The classification was made on the basis of the value of the product produced, whether marketed or consumed on the farm. Under "Value of Products" is included everything raised on the various types of farms. The factor which determines farm classification under one specialty is the type of agricultural activity which contributed the most to the total value of production.

TABLE 5

TYPES OF FARMS ON THE ISLE OF PINES, 1945[1]

Type	Number	Percentage of All Classified Farms	Value of Products
Provision Farms[2]	143	45.0	$79,187
Livestock Farms[3]	87	27.3	63,387
Fruit Farms[4]	42	13.3	102,310
Winter Truck Farms[5]	15	4.7	75,760
Others[6]	32	9.7	10,737
Total for the Island	319	100.0	$331,381

[1]Cuba, Memoria del Censo Agricola, 1946, Table 54.

[2]Includes potatoes, sweet potatoes, calabaza, yuca, peanuts, rice, corn, beans, and forage crops.

[3]Includes farms selling cattle, milk, cheese, hogs, and chickens.

[4]Includes grapefruit, oranges, and other citrus.

[5]Includes tobacco, forest products, and those farms without income

From these figures the pre-eminent importance of the provisions farms becomes evident, 45 per cent of the total number of farms on the island. However, despite their pre-eminence numerically, in production they account for only 23 per cent of the island's total products by value. Each provision farm averages $553 worth of products produced in 1945, indicative of the subsistence nature of this type of operation.

Generally the operators of these farms are either squatters

or small owner-operators, comprising the lower rungs of the social scale of the island's farmers. Their holdings are small, generally with only a vegetable plot and a small field where they may have a few head of livestock. Most of the produce raised is consumed in the home and only occasionally is it marketed. In most cases these provisions farms act only to supplement the earnings of the operators, as commonly they either are full-time employees of the commercial farms or pick up as much employment as they can in town or at miscellaneous agricultural jobs which open up throughout the year. Areas with heavy concentrations of these provisions farmers are in the vicinity of Nueva Gerona and in the Santa Barbara and McKinley district.

The next largest group of farms are those which are primarily active in cattle raising. Eighty-seven farms were enumerated in 1945 which recorded cattle as their product of greatest value. Cattle production has always been an integral part of the economy of the island, both on the large estates and on the small farms as well. At the time of the census, although there were at least 10 cattle ranches over 5,000 acres in size, two of which had over 1,000 head of cattle each, 129 farms reported 10 head or less. The average farm had a total value of production of only $728, an indication of the unimportant role the average livestock farm plays in the economy of the island. Actually, although large herds do range over the island, they are usually in a semi-wild state and are rarely marketed locally. Most are generally owned by large absentee landowners who prefer to let

the herds grow without exploiting them commercially.

Cattle farms are probably the most ubiquitous type of farm operation on the island. Cattle can be found almost everywhere, although in certain sections of the island their densities are low. The smaller cattle farms are located among the provision farms, in the vicinity of Nueva Gerona and Santa Fe, or in the Santa Barbara district. Here holdings are too small to allow large herds.

Citriculture, a specialty for which the island has received widespread fame, is the third most important type of farm on the island. In 1945 there were 42 farms which specialized in fruit production, and fruit provided the largest source of income of any other farm product on the island. Many of the large scale growers are American, the remnant of those who settled during the earlier American period. These Americans, and several Cubans who also have entered the business, have attained high social position and their homes and barns are generally the most costly of any type of farm on the island. Their groves are located chiefly in the McKinley and Santa Barbara districts, and near the village of Santa Fe.

The market vegetable farms numbered only fifteen at the time of the census. Yet despite their low number, even in 1945 they ranked first in the value of production per farm, $5,050 per farm. Since that year both production and the number of growers have increased; by 1955 they actually out-ranked citriculture as the largest source of income for the island.

The winter truck farms on the island are principally operated

by Cubans, but some Americans are engaged in raising cucumbers for export. This type of farming is the most highly mechanized on the island, and all the latest agricultural techniques practiced on South Florida winter vegetable farms are employed on the Isle of Pines winter vegetable farms. Almost one hundred per cent of the total cropland put to winter vegetables is in cucumbers, but there are small fields of melons and peppers. Winter vegetable fields are found almost everywhere on the interior plain of the island, usually in places distant from other cropland. The winter vegetable farmer often changes his fields every few years, since the danger of plant diseases increases if the same field is used repeatedly. This is the reason why there appears to be such little regionality to the distribution of winter truck farms.

Each farm specializes in certain products on the Isle of Pines, but few have been exclusively occupied in growing their own particular specialty. The highest degree of specialization is found on the intensely commercial citrus farms, and on the cattle ranches. The reason for such intensity of production on cattle ranches can be attributed to the fact that the majority of cattle raised on the big estates seldom are exploited commercially. Winter truck farms are less specialized because, to a great degree, they also will raise other vegetables which fit into the provision category. In turn, the provisions farms raise cattle as well as crops that winter vegetable producers specialize in. The difference between the ancillary production on the two farms is that winter truck farms

raise provision vegetables for market, while provisions farms raise winter vegetables for home consumption.

Citriculture

An important segment of the agricultural economy of the Isle of Pines is citriculture. Grapefruit is overwhelmingly the most important fruit produced, but in addition some oranges, lemons, and mangoes are also raised. An estimate of the total production of citrus during the 1956-57 growing season is approximately 300,000 crates worth $325,000.

The citrus industry on the Isle of Pines was established by Americans who arrived on the island immediately after the Spanish-American War. In 1903 several Americans associated with two of the land companies active in purchasing property on the island put in trees near La Ceiba. From this initial planting expansion was rapid, and within five years the total acreage in groves was in excess of five hundred acres.

The establishment of the citrus industry on the Isle of Pines can be directly attributed to the efforts of the land companies in their promotion campaigns to stimulate sale of property. These companies initiated extensive advertising campaigns directed toward Americans, particularly those who were living in the northern states. Since these advertisements were written to appeal to Americans of modest means and those of retirement age, by stressing the high per acre monetary return on citrus as well as the comparatively low labor demands required in small grove maintenance, they hoped to

Fig. 23.--Grapefruit Grove near Santa Barbara

Fig. 24.--Loading Grapefruit onto the Steamship Sarasota

encourage the sale of small tracts of land to be put into citrus.

Grapefruit immediately became the most popular fruit tree planted. This fruit was selected because the growers were Americans who were under the misapprehension that the island would soon be incorporated into United States territory. They therefore were anxious to develop citrus production around a fruit that commanded a high price in the United States markets. At that time (1903 to 1910) grapefruit was just gaining widespread popularity in the United States, and the demand was considerably greater than supply, grapefruit selling for as high as $6.00 per crate in the New York market while oranges rarely exceeded $4.50.[2] Another important reason that grapefruit was chosen was because it proved to be a better shipper than other citrus, being able to withstand the long trip to the United States markets with little danger of bruising or spoilage.

Both production and acreage increased rapidly from the first year that grapefruit was planted. This trend continued almost uninterrupted until the year 1923, when land in groves had reached over ten thousand acres. After that year there was a continual contraction in the acreage as well as a decrease in total production because of the abandonment of submarginal groves by discouraged Americans who returned to the United States. The more efficient growers who remained continued raising grapefruit, but the total volume never attained the amount produced in the years immediately

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[2]Wright, Gem of the Caribbean, op. cit., p. 48.

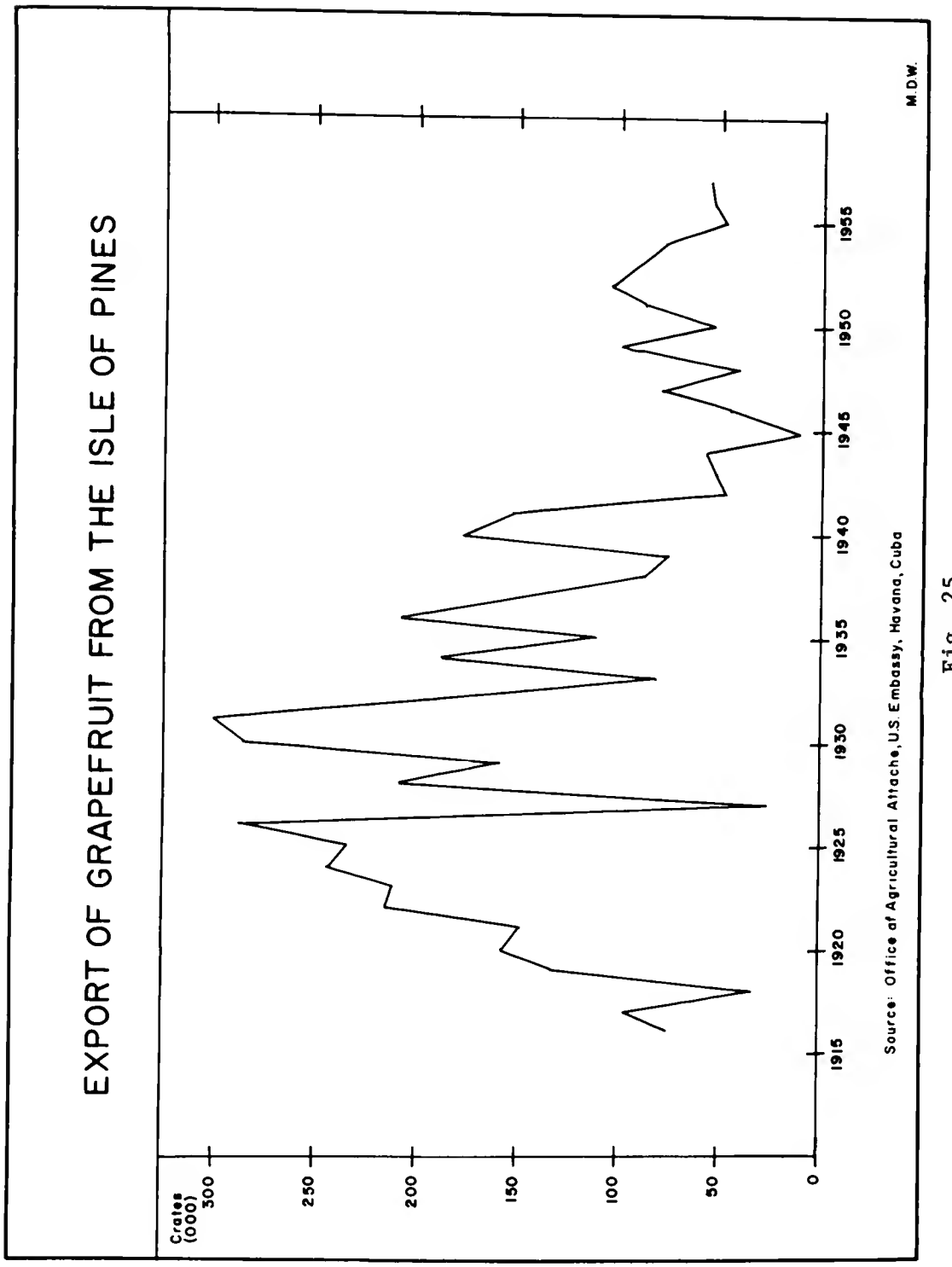
EXPORT OF GRAPEFRUIT FROM THE ISLE OF PINES
Crates (000)
300
250
200
150
100
50
0
1915
1920
1925
1930
1935
1940
1945
1950
1955
Source: Office of Agricultural Attache, U.S. Embassy, Havana, Cuba
M.D.W.

Fig. 25

prior to 1923. Since that date the acreage of groves has continually decreased; in 1930 there were only 1,500 acres remaining, and by 1957 the acreage has been estimated by resident citrus growers to have fallen to only eight hundred acres.

The most profitable market for Isle of Pines grapefruit has always been the United States. Shipments to this country began in 1907, the first year that fruit was produced on the island. Since then there has never been a season when the island's growers have failed to make shipments to this country, although in some years the quantity has been negligible. Beginning in 1907 the annual shipment of fruit rose steadily until 1927; in that year the island was able to produce but a small quantity of fruit because of a severe hurricane that had hit the island the previous year and had destroyed many trees. The industry was able to recover from this setback quickly, and by 1931 exports to the United States reached 301,442 crates, the largest shipment the island has ever made. From that time to the present, movement of fruit to the United States has gradually diminished. Initially this was due to the depression in the United States, but the Smoot-Hawley tariff of 1930 and increased competition from United States growers have continued to handicap Isle of Pines growers. During World War II there was a special reason for the reduced shipments, the harassment of the Atlantic seaboard by Nazi submarines.

Competition with grapefruit producing areas in the United States has plagued the Isle of Pines growers since the industry's infancy. The highly efficient operations of Florida, California,

and Texas have consistently been able to produce and market fruit at a lower cost than the Isle of Pines. This has meant that the island's growers have been able to send fruit to the United States only during periods when domestic growers are unable to supply the market.

The situation of the Isle of Pines is particularly advantageous in that it is several degrees south of the citrus area of Florida. This has meant that grapefruit usually ripens by the second week in August on the Isle of Pines but not until almost the fifteenth of September in Florida. During this period prices for grapefruit are high enough in the United States to permit the Isle of Pines growers to ship profitably.

As soon as the Isle of Pines fruit approaches maturity, growers begin to pick the trees selectively for all fruit which is ripe or nearly ripe. In the case of fruit which has not ripened completely, the growers have been able to change its color from green to yellow by subjecting it to ethylene gas in a sealed room for twenty-four hours. This process, also common in citrus areas in the United States, has been practiced for the past thirty years on the island to permit the growers to ship as early as possible. The quality of the fruit remains unchanged under the gas, but the appearance is changed enough to make it appear as if it were completely ripe.

September has always been the biggest month of exports, even when the industry was in its infancy. In that month the prices are high because United States fruit has not matured, and the Isle of

Pines growers become the sole foreign shipper to the major market areas. In the early years, shipments were able to continue at a reduced scale throughout many months of the year. This situation was ended by the enactment of the Smoot-Hawley Tariff in 1930. The tariff, even though it later was modified by a reciprocal trade agreement with Cuba, imposes a duty on all fruit imported into the United States. In the case of Cuba, the duty is 3/10 of a cent a pound from August 1 until September 30, 6/10 of a cent from October 1 until October 31, and 1 and 1/5 of a cent from November 1 through July 31. This in effect has made it impossible for Isle of Pines growers to ship beyond October 1, unless prices become extremely high in the United States markets.

Further United States restrictions were imposed in 1955 when minimum quality standards were placed on all fruit imported into the country. At that time the United States Government began inspecting fruit for juice, acidity, size, and maturity. This conceivably can restrict the short shipping season of the island's growers even further because, in the event of low precipitation in the summer months, the fruit may not meet the standards established by the United States. This situation nearly arose during the summer of 1956, one of unusually low rainfall. At that time, a week before picking was scheduled to begin, the fruit inspector sent by the United States Embassy in Havana to test fruit to be exported to the United States found that the acidity content of the fruit was too high, and the percentage of juice too low to meet import standards. For several days it appeared as if

he were going to prevent shipment, but fortunately the rains occurred in enough volume before picking was scheduled to begin to allow the fruit to meet the import standards.

It has been suggested that the Isle of Pines growers seek a variety of grapefruit tree which matures earlier than those they grow at present.[3] Such a proposal may be impractical because the demand for grapefruit in the United States has never been great in summer, the fruit traditionally being a commodity which is consumed in the fall and winter months.

Isle of Pines grapefruit growers often speak of their salvation as being a hard freeze in the Florida grapefruit groves. If a hard freeze should occur in Florida, grapefruit shipments from the state would be reduced to such a point that prices would attain a level where Isle of Pines growers could ship profitably beyond October 1, the date that duties rise. However, even if such an eventuality should arise, the basic problems of the grapefruit industry on the island would not be resolved, only temporarily alleviated.

Because of the limited period which Isle of Pines growers can market fruit in the United States the bulk of their produce is sent to Cuba. The island has supplied over 60 per cent of the total grapefruit consumed in the nation annually, the rest being grown in many scattered groves throughout the Provinces of Camaguey, Havana, and Pinar del Rio. The Cuban market offers little remuneration to the growers compared with what they receive in the United States

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[3]International Bank for Reconstruction and Development, Report on Cuba (Washington: International Bank for Reconstruction and Development, 1951), p. 847.

market, but it is steady, and it lasts for most of the year. Production costs are also much lower when fruit is shipped to Cuba since it is not necessary to grade, individually wrap, and crate it as must be done before it can be shipped to the United States. Fruit is simply put into sacks or shipped loose, no effort being made even to clean the fruit before it leaves the island.

Today the bulk of the fruit is produced by approximately twenty growers. These growers, who operate nearly 800 acres of groves, are primarily Americans, the remnants of the much larger group that lived on the island in the early part of the century. Their groves are situated in many sections of the island, but particularly around Santa Barbara and McKinley, and near Santa Fe. Distribution of the groves cannot be attributed to any special physical assets in these areas, but to the tenacity of a handful of Americans, and later of a few Cubans, who have been able to continue operating their groves despite the mounting marketing problems.

Due to the fact that Isle of Pines growers have lost such a large share of the United States market, their profits have been falling steadily. Attempts have been made to seek new foreign markets, particularly in Canada, in England, and in Germany. Before World War II the island did actually ship small quantities of fruit to these countries, and to France as well. However, growers have been unsuccessful in making negotiations during the post-war period. Lack of a profitable market has caused most growers to economize, especially in the use of fertilizers, in order to keep production costs to a

minimum. This has had a decided effect on the yields of the trees, which are only a fraction of the yields of Florida groves. Under the circumstances they have little recourse other than to retrench, since they have been unable to find any other way to increase their markets.

Orange production on the Isle of Pines is only of local importance, no fruit being exported to Cuba. In 1945 there were only 13,000 trees, many of which were growing in a semi-wild state in abandoned groves. Yields from most trees have been negligible, and the quality of the fruit usually does not compare with that of those grown in the commercial citrus areas in Camaguey Province. Isle of Pines grapefruit growers have rarely been motivated to attempt any commercial production of oranges, even for the Cuban market.

The Winter Vegetable Industry

In 1950 the winter vegetable industry of the Isle of Pines surpassed all other types of agricultural activities in total value of production, even exceeding in value grapefruit production, which had held primacy from the turn of the twentieth century. In the 1950-51 season total value of production had reached over $500,000, and since then it has consistently risen above this figure, the 1955-56 season producing a total of $800,000 worth of vegetables, the majority being cucumbers exported to the United States.

Market vegetable production began at approximately the same time as citriculture, and for much the same reasons. The industry was begun by a handful of Americans who had come to the island in

response to the land companies' appeals. As has been seen, some began to plant citrus, others commenced raising winter vegetables, in the hopes of supplying American markets. Initially the market vegetable growers encountered more handicaps to shipping their produce north than did the citrus growers. The long and slow trip to the United States proved too arduous for the vegetables, and there was a great amount of spoilage en route.

Later, with the establishment of more efficient ferry service to Cuba some export was possible, but the industry never thrived until after World War I. Figures are unavailable for most of the period before 1928, but using the three years 1920 to 1923 as an index, the majority of produce sent consisted of peppers, cucumbers, eggplant, and string beans.[4]

Cucumbers became the most important export vegetable in the early 1930's. At that time growers began to concentrate on this crop because it generally commanded excellent prices in the winter vegetable market of the United States; and it could also be shipped better than other vegetables, there being less danger of spoilage in transit. By 1937 more than twenty five growers specialized in cucumbers on the Isle of Pines, and the island had become the sole foreign supplier of cucumbers to the United States winter vegetable market.[5] Most produce left the island for New York or Chicago, via

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[4]Isle of Pines Appeal, December 19, 1923, p. 23.

[5]Oscar Hernandez Torres, "El Cultivo del Pepino, su Envase y Exportacion," Revista de Agricultura, XX (Abril-Mayo, 1937), p. 152.

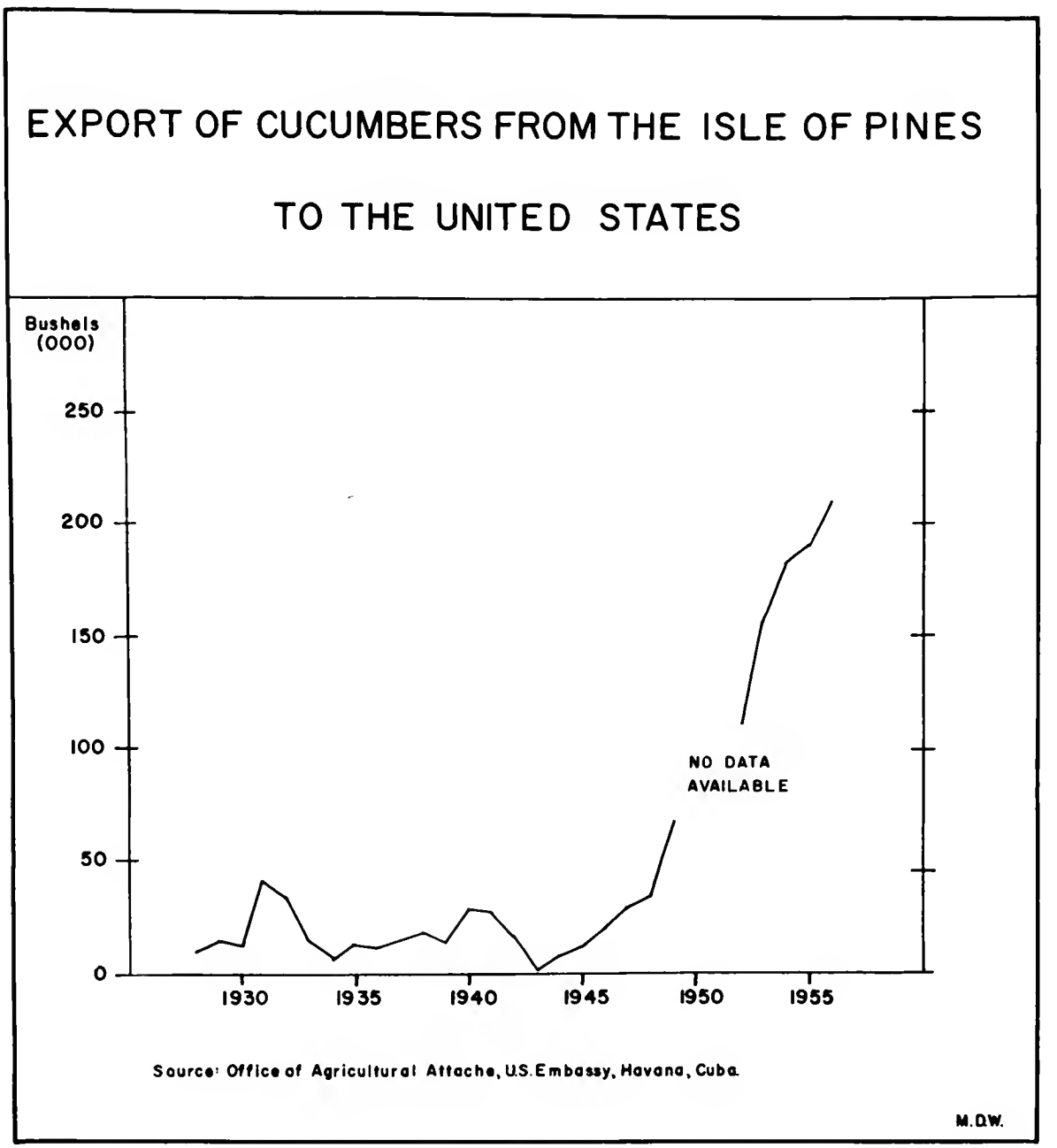
EXPORT OF CUCUMBERS FROM THE ISLE OF PINES
TO THE UNITED STATES
Bushels (000)
250
200
150
100
50
0
1930
1935
1940
1945
1950
1955
NO DATA AVAILABLE
Source: Office of Agricultural Attache, U.S. Embassy, Havana, Cuba.
M.D.W.

Fig. 26

Batabano and Havana.

Figure 26 shows exports of Isle of Pines cucumbers to the United States from 1928 to 1956. In the prewar years there were two brief periods in which production rose above normal, 1931 and 1932, and 1940 and 1941. These periods of high production were due to favorable market arrangements made between Isle of Pines growers and United States import houses, as well as a short supply of domestic cucumbers due to hard freezes in Florida. The period of low production during World War II can be attributed to the operation of German submarines in the Western Hemisphere during the war.

Beginning in 1949 the island's cucumber industry began to be revitalized. Each year following that date production rose, until by 1956 the island was producing twenty million pounds of cucumbers annually. In 1949 representatives of Florida packing firms arrived on the island and began contracting local farmers to grow cucumbers to be supplied to their firms. At the same time several American growers also arrived, leased land, and began raising cucumbers themselves. These Americans were in search of an area which would be free from the dangers of frost, a hazard which Florida growers have had to face continually. Their attraction to the Isle of Pines was not due to any physical advantage of the island, for in reality, its poor sandy to sandy loam soils require a higher degree of fertilization than the soils of Cuba. Also, marketing expenses are higher on the Isle of Pines than in Cuba, since it is necessary to tranship twice before cucumbers reach the United States. The major reason the Americans chose the island was that American imports of cucumbers

Fig. 27.--Japanese growers packing watermelon for shipment to Havana.

Fig. 28.--Japanese farmer's dwelling near Jucaro.

have always emanated from there, and also that many natives on the island speak English. The latter point seemed important in the beginning because of the involved negotiations which had to be consummated between the American contractor and his local growers. American growers found it easier to deal with English-speaking laborers.

At the present time most of the cucumbers on the island are being raised directly by Florida growers, or by local growers financed by Florida packing outfits. Americans who raise their own crops find it inexpensive to rent land. The large landowners on the island have been willing to give them full use of property free, in order to derive the benefits of having the land cleared by the growers and also of having the soil enriched by the fertilizers left behind after the crop has been harvested. Florida firms which contract local farmers usually furnish seed, fertilizer, and spray material, while the farmer is obligated to supply the land, labor, and equipment. Under this arrangement the contractor and the grower split the profits equally.

In the 1956-57 season there were approximately one thousand acres in cucumbers. This acreage was located in all sectors of the northern part of the island, the most important consideration for determining location being its advantage for irrigation, a vital factor due to the low winter precipitation. The ideal site is a level, grass-covered field near a stream. If these three factors can be satisfied, savings will accrue both in clearing and in irrigation.

There has been a tendency for growers to diversify their fields in an attempt to lessen the danger of crop damage from mosaic diseases.

The Isle of Pines growers begin to plant cucumbers in the early fall. Plantings are arranged so that the market season may be lengthened, lessening the danger from price fluctuations in the United States. Harvesting begins about the middle of December and continues into early April. The largest quantity of cucumbers reaches the United States during the month of February. January, March, April, and December follow in order of importance.

Cucumbers are harvested in field boxes and then hauled to a central packing house. There they are washed, graded, and waxed, then boxed into sixty-five pound containers. Usually only the top two grades of cucumbers are exported, the culls being thrown away, no effort being made to market them in Cuba. From the packing house the boxes of cucumbers are hauled to the docks at Nueva Gerona, where they are hand loaded onto the steamship which runs from Nueva Gerona to Batabano, Cuba. After reaching Batabano the boxes are again unloaded and packed into trucks or freight cars and shipped to Havana. In Havana they are again repacked into freight cars and shipped by car ferry to West Palm Beach, Florida, where the car is removed from the ship and brought to Pompano, Florida, twenty miles to the south. The cucumbers usually incur fifteen to seventeen per cent damage on the trip from the island, and it is necessary to regrade and repack them at Pompano, increasing marketing costs still further.[6]

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[6]U.S. Dept. Agric., Foreign Agricultural Service, Survey of the Cuban Fruit and Vegetable Industry (Washington, April, 1957), p. 6.

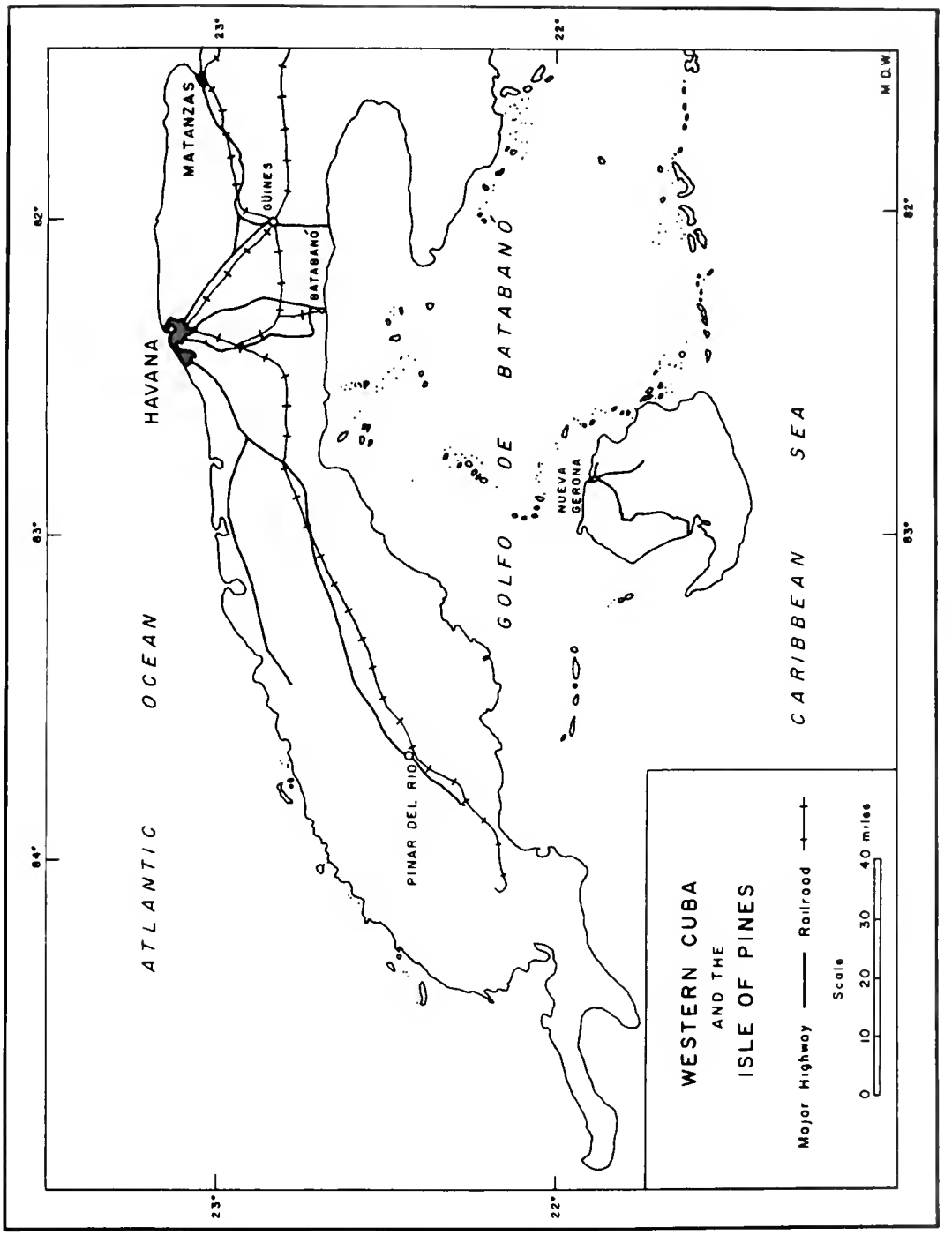
ATLANTIC OCEAN
HAVANA
MATANZAS
GÜINES
BATABANÓ
PINAR DEL RIO
GOLFO DE BATABANO
NUEVA GERONA
CARIBBEAN SEA
WESTERN CUBA
AND THE
ISLE OF PINES
Major Highway
Railroad
Scale
0 10 20 30 40 miles
M.D.W.
84°
83°
82°
23°
22°

Fig. 29

The price paid to Isle of Pines growers for their cucumbers is affected by the amount of cucumbers, both foreign and domestic, which can be supplied to the United States markets. The largest domestic supplier is the South Florida area. However, Florida winter cucumber production is particularly vulnerable to climatic hazards, especially freezes, and to plant diseases. In the event of freezes, which have hit the Florida growing areas repeatedly, the island's cucumbers have been able to command high prices in the United States.

Growers on the Isle of Pines maintain that they cannot compete with United States producers under present day cost-price relationships if the Florida market price of good grade cucumbers falls below $4.50 a bushel, due to high production and marketing costs for their cucumbers. These high costs restrict the length of the marketing season for the island, since large-scale production in Florida keeps prices below $4.50 usually until the second week in December, and ordinarily resumes again by mid April. A further restriction is the duty imposed on cucumbers imported into the United States. This duty is one cent per pound between December 1 and February 28, and is raised to two and three-fifths cents per pound beginning March 1.

After a successful beginning on the island, the industry has begun to show signs of decline. American and Cuban growers are becoming increasingly attracted to Cuba where they find more favorable conditions for production. The main attraction of Cuba is that higher cucumber yields are possible, and there is less likelihood of damage to the cucumbers through excessive handling, because there are

fewer transhipment points on the trip to the United States. During the 1956-57 season, when cucumber prices were high in the United States, many Isle of Pines growers were unable to ship because their crop was hard hit by the cucumber mosaic and several other plant diseases. This has acted to increase the movement of growers from the island to Cuba.

Small quantities of watermelon have been raised on the Isle of Pines for the United States market, as well as the Cuban market. Production has largely been in the hands of the Japanese farmers who often plant their watermelon on fields where cucumbers have been grown in order to take advantage of fertilizers left behind.

Watermelon production normally amounts to approximately 150,000 melons per year, or the equivalent of about two thousand tons. The majority of the melon production is marketed in Cuba, the growers only shipping a little over two thousand melons to the United States in the 1956-57 season. Export to the United States is limited to February and March, but shipments to Cuba continue most of the year. The usual type of watermelon exported is the large type, although recently the growers have begun to grow the icebox melon. It is hoped that by converting from the large watermelons to the smaller varieties, growers will be able to capture a higher percentage of the metropolitan markets of the United States.

Livestock Industry

The third most important agricultural pursuit on the island is the raising of livestock. In 1945 livestock slaughtered for home

consumption or sale accounted for sixteen per cent of the total value of all agricultural production. In that year there were 9,779 head of cattle on the island as well as 1,157 swine. Since 1945 herds have grown rapidly and in 1957 it was estimated by local cattlemen that there were 20,000 head of cattle and approximately 5,000 swine.

Cattle ranching was the first agricultural activity associated with the island, forming its economic base through the entire colonial period. In 1792, when the population of the island was less than one hundred, the number of cattle had surpassed eight thousand heads.[7] Since then the number of cattle per person has never attained as high a figure, but it always has been higher than in Cuba. In 1952 there were 1.39 head of cattle per capita compared with .69 head for each person in Cuba.

Despite such a high number of cattle per person the Isle of Pines cattlemen have rarely slaughtered their animals for commercial consumption other than for local needs. Only in brief periods throughout its history has there been any movement of cattle to Cuba. At the end of the eighteenth century it was reported that shipments amounted to roughly five hundred head annually, which, if true, was the period of greatest livestock trade with Cuba. At that time, in addition to live cattle being brought to market, there was a small trade in hides, dried beef and tallow. During the nineteenth century trade was irregular, movement being made when the price of beef in

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[7]Wright, Isle of Pines, op. cit., p. 26.

Cuba attained a high enough price to allow the island to compete with the regular sources of supply of beef in Cuba. Since the Spanish-American War, trade in livestock has all but ceased except for occasional shipments of hides. Actually, in 1952 there were 1.39 head of cattle per person on the island, but total consumption of beef annually was only 33.7 pounds per capita compared with 59.9 pounds per person in Havana Province, and a national average of 61.2 pounds.[8]

At first appearance the savanna grasslands of the Isle of Pines appear admirably suited for a flourishing cattle industry, and it seems incongruous to find the inhabitants of the island consuming less meat per capita than the average Cuban. However, closer examination of the situation reveals many problems, both physical and cultural, which have acted as important deterrents to the development of a cattle export industry.

The most important factor retarding the development of the cattle industry on the island is the paucity of adequate pasture land. There are over 800,000 acres of land on the island, or a total of forty acres per head of cattle. Actually large areas of the island are totally unusable as pasture for cattle, while other areas are at the best submarginal and can only support a small cattle population. After these areas have been taken into consideration, as well as Lanier Swamp, the mountain and hill regions, the coastal swamps, and

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[8]Miguel A. Monzon and Eduardo Santos Rios, Estudio Economico Social de la Isla de Pinos (La Habana: Banco de Fomento Agricola e Industrial de Cuba, 1952), p. 48.

Fig. 30.--Improved pasture on administrator operated estate.

Fig. 31.--Scrub cattle grazing in a natural pasture.

the forest on the limestone plain on the southern side of the island, only approximately 350,000 acres of usable pasture land remains. Of these 350,000 acres a large percentage is barely suitable as pasture because of the heavy concentration of Mal Pais gravel which covers its surface and prevents a dense stand of grass from developing. At present ten arable acres of pasture are often required to support one head of undernourished cattle.

Another physical factor which has inhibited the development of the cattle industry is the poor nutritional value of the native grasses which do grow on the island. These grasses, mainly broom sedge, rush grass, and other species of grass equally as coarse, grow in response to the poor soil conditions found everywhere in the entire northern part of the island. Cattle, naturally light because of poor breeding, have had difficulty even sustaining themselves on these grasses, let alone gain weight. It is not unusual to see the cattle, which normally rarely weigh over seven hundred pounds at maturity, reduced to "skin and bones" during the dry winter months when the grasses lose their succulence almost completely. At times cattle have simply died from malnutrition, despite the apparent lushness of the rangelands.

In an attempt to improve the local natural pastures, firing the grasses has been practiced for years. The usual method is to burn all pastures at some time during the dry season. This has four advantages: (1) it lessens the ever present danger of the cattle tick, (2) it destroys the previous season's coarse woody growth, (3) it permits the young grasses to come up, and after several weeks this

provides some green feed for hungry cattle, and (4) it assists in destroying some of the unpalatable brushy undergrowth. Unfortunately the firing of the grasses has had adverse effects as well. It indiscriminately kills what few palatable native grasses grow in the pasture along with the coarse ones as well as destroys the soil humus. Further, it is destructive to pine stands on the island, many of which have been killed. Usually once the pines have been destroyed, a thicket type vegetation takes its place, since shrubs are able to withstand fire better than pine.

One cultural factor which has retarded the development of the cattle industry has been the presence of large areas of idle arable land on the island. Some of this property is owned by Americans who lived in the United States but continued to pay taxes on it. Other land has been withdrawn from productive use because of litigation over its rightful ownership, while more remains idle simply because it was bought for speculative reasons and the owner had been unwilling to initiate any economic activity. As a result, it is possible to drive for miles throughout the island and see vast pasture lands, with only a few head of cattle grazing.

To a high degree the cattle industry of the island is monopolized by a handful of Cuban and American cattle ranchers. In 1952 38.2 per cent of the cattle belonged to 2.6 per cent of the farms on the island.[9] Ranches with large herds are particularly concentrated

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[9]Cuba, Ministerio de Agricultura, Censo Ganadero, 1952 (La Habana: S. Fernandez, 1953), Table 7.

in the two largest barrios of Santa Fe and Cuchilla Alta, where the island's large holdings are located. In Santa Fe there are three ranches which in 1957 had over five hundred head of cattle each, while in Cuchilla Alta there are at least two herds which have reached this size. The largest herd of the island, which in 1952 was listed as having 2,456 head of cattle, is actually located in non-contiguous pastures in many parts of the island. The small herds are found almost everywhere on the island where subsistence farmers live. Particular concentrations of these farms are in the Santa Barbara and McKinley districts, and around the town of Santa Fe.

As has been mentioned previously, the cattle industry has grown considerably since 1952. The reason for this increase has been stimulated in part by the necessity of the island's commercial farmers to find other sources of income aside from those which they are exploiting at the present time. The cucumber industry, which few of the island's large property owners have ever engaged in directly, is now losing importance on the island due to high marketing costs which are sustained in movement of produce to the United States. The grapefruit industry, which has been the major source of income for many of the large property owners, also is suffering a slow decline, a victim of high marketing costs just as the cucumbers are. Loss of these traditional sources of income has compelled a number of farmers to diversify, and many have chosen to branch out into the cattle industry.

Another reason for the rapid increase in cattle can be attributed to the recent creation of several large cattle ranches on

the island by wealthy Cubans and Americans. These men have bought large tracts of land and have begun to make large investments in cattle much as a "country gentleman" in the United States would. As they are all active in other occupations, immediate profits are not of as vital concern to them as they are to the commercial farmers who are attempting to diversity their agricultural operations. Actually, a few of these farms are developing into model ranches, their owners going to great expense in improving both herds and pasture.

The first concern of these cattlemen has been to develop improved pastures. A first-class improved pasture requires heavy capital investment, which has meant that the majority of improvement has been on the farms of the wealthy Cubans and Americans who have ample money to invest. However, several American and Cuban commercial farmers have also introduced new strains of grasses in an attempt to raise the productivity of their pastures. Guinea grass, Panicum maxima, and jaragua, Hyparrhemia rufa, have been planted with some success, as well as bahia grass, Paspalum notatum, pangola, Digitaria decumbens, and Saint Augustine, Stenotaphrum secundatum.

Some of the more progressive stockmen, who have sufficient capital, have tried to follow some system of pasture management, especially rotation grazing. Fences, which have previously been a rarity on the island, have been built. This has permitted ranchers to move their cattle according to the condition of their pastures. Perforce, this system has been limited to the large operators, since

small-scale ranchers have neither the acreage nor the capital to engage in such practices.

Another method for herd improvement has been the introduction of new strains of cattle. The most common beef animal on the island in the past has been the Criollo, a breed which developed from the first Spanish cattle brought to Cuba in colonial times. Recently Brahman cattle have been crossed with this Criollo in an effort to improve the breed; the subsequent hybrid has proved to be highly adaptable to the natural conditions on the island. One cattleman, an American, has introduced the Santa Gertrudis breed, which he is now crossing with his Criollo stock.

At the present time cattlemen have barely been able to supply both the demand of the penitentiary and local demand for beef, and there has been little thought of immediate shipments to Cuba. Currently the island is neither served by vessels equipped to move dressed beef nor does it have an abattoir capable of handling more than local demands. Once these deficiencies have been corrected, and the size of the herds attain sufficient size to permit ranchers to supply other than local needs, profitable shipments of beef to Havana could be arranged. The present demand for beef in Cuba is far in excess of what can be supplied from domestic sources and annually large quantities of beef are imported. The cost of shipping meat from Cuba's present beef producing centers to Havana is greater than the probable cost of shipping meat from the Isle of Pines to Havana, and the island possibly would be able to compete in this market.

Isle of Pines ranchers have also become interested in the possibilities of supplying foreign markets. In 1942 Cuba banned all export of cattle in an attempt to alleviate the short supply of domestic beef. However, in October, 1957, the Government decreed that the Isle of Pines would be excempted from this ban. This move was made in an effort to help stimulate economic conditions on the island. At the present time it is too early to make a statement as to the effects of this decree, but cattlemen have begun to investigate the possibility of exporting beef to the United States or Venezuela. Today export to the United States appears out of the question because the island has neither the facilities for butchering cattle which would meet the sanitation requirements of the United States nor the cattle which would produce the grade of beef that could be marketed fresh in that country.

Milk production is small on the island, and no cheeses or other dairy products are manufactured. The 1952 livestock census listed 988 cows which were used for milking purposes. These cows, mainly of the criollo breeds which compose the base of the beef herds, are generally found on the small farms near the two villages. There are only two commercial dairies on the island, neither with pasteurizing facilities. One of the dairymen, of Polish origin, has a herd of Brown Swiss cattle. As far as the author has been able to ascertain, this is the only herd of dairy animals on the island.

Swine have been of local importance to the residents of the Isle of Pines for many years. In addition to furnishing meat, they have been valuable because they are the source for lard, extremely

important in the diet of most Cubans. Between 1908 and 1946 there were between one thousand and two thousand head of swine on the island. However, in 1952 over nine thousand were enumerated, a significant increase from the 1946 figure which was just over one thousand. A large percentage of this increase can be attributed to the establishment of a pig farm near Los Indios, but several other ranchers also increased the size of their herds. Since 1952 the swine industry has been beset by considerable difficulties. In the fall of 1957 a virulent type of hog cholera swept through the island killing many pigs. The large commercial pig farm near Los Indios never recovered from the damages done by the disease, and has since gone into cattle production.

Sheep and goats are relatively unimportant on the island. The Isle of Pines does not have a natural environment suitable for sheep, and they have never occupied a place of importance among livestock on the island. Goats, on the other hand, could offer an important source of milk and meat if they were raised. Furthermore, goats could range on the coarse grasses with little difficulty, and probably would be able to find a place in the economy of the island. At the present time there are 586 sheep and 138 goats.

Work animals on the Isle of Pines are not as well represented as they are in Cuba. Only 5.1 per cent of all livestock on the island was used for work in 1952, while 7.3 per cent were so used in Cuba. Horses can be seen on the streets in Nueva Gerona at almost any time of the day or night, but the distances are much too great on the island to permit frequent use of horses for transportation. As a

source of power for farming neither the horse, the ox, the mule, nor the burro compare in importance on the Isle of Pines with their use as a source of power in Cuba. The agricultural economy of the Isle of Pines is much more highly mechanized than in Cuba

Conclusion

Agriculture is the most important activity on the Isle of Pines, but it has failed to develop there to the degree that it has in nearby areas in Cuba. This substantially can be attributed to a general lack of fertile soils on the island, as well as its isolation from both domestic and world markets. Whereas Cuba has developed a highly commercial agricultural economy, exporting a variety of products, throughout the colonial period the Isle of Pines only produced a small number of cattle which were occasionally moved to Cuban markets. After the Spanish-American War a number of Americans arrived on the island and introduced citriculture and winter vegetable farming. This produce was mainly exported to the United States. The success of these ventures were not due to any physical advantages the island offered, but to the fact that the Americans put both the energy and capital into their farms to make them produce. Today winter vegetables, mainly cucumbers, and grapefruit production continues to be the major economic activity of the island, and exports of both products are made to the United States during the winter months. Due to increased competition from other areas, unsuitable growing conditions, and trade barriers, both industries are presently declining in importance. At the present time livestock has begun to again attract the attention

of the island's major farmers, who feel that they might be able to compete in the domestic as well as the international markets for beef.

CHAPTER VI

EXTRACTIVE INDUSTRIES

The Fishing Industry

Fishing is the most important extractive industry on the Isle of Pines. In 1952 approximately two million pounds of fish, lobster, turtles, and sponges were landed on the island by the island's fishermen. In that year the entire industry had a combined value of $221,036.45 (See Table 6). This figure represented a little over two per cent of the total value of the fishing industry of Cuba.

Although the industry of the island is not highly developed at the present time, the Isle of Pines offers certain distinct advantages which have favored existing activities. Geographically it is in an excellent position to serve as a base of operations for fishermen who work the two distinctly different fishing areas nearby--the Gulf of Batabano and the Caribbean. The waters of the Gulf are the home of the lobster, most of the important fish that the Cubans consume in fresh form, as well as sponges and shrimp. Bonita, tuna, shark, turtle, and mackerel are taken from the Caribbean.

Fishing was one of the major activities of the pre-Columbian residents of the island. As has been previously mentioned, the Indians of the island mainly lived in caves along the shore, subsisting on what they could gather from both the land and the sea. After the conquest of Cuba and the settlement of the island by Spaniards and

TABLE 6

VALUE OF FISH LANDED ON THE ISLE OF PINES, 1952*

Fish	Total Fish Landed (lbs.)		Value
	Nueva Gerona	Caleta Grande	
Bonita	698,605		
Red-Tailed Snapper	32,185		
Mutton Fish	27,240	2,500	
Yellow-Tailed Snapper	18,650	1,200	
Grey Snapper	17,165		
Inferior Fish	30,550	3,000	
Nassau Grouper	2,900	8,250	
Dog Snapper	2,500		
Mackerel		7,800	
Silk Snapper		3,000	
Shark		2,000	
Total Fish	829,796	25,750	$86,188.55
Other			
Lobster	944,046		125,896.00
Turtle	3,500	5,300	440.00
Sponges	3,338		8,511.90
Total Value			$221,036.45

*Cuba, Banco de Fomento Agricola E Industrial de Cuba, Investigaciones de Puertos Pesqueros, Zona Sur, Vol. 2 (La Habana: mimeographed report, 1954), p. 144.

Negroes, fishing continued to occupy an important place in the economic life of the inhabitants. Further, the pirates and later the poachers from Jamaica and the Cayman Islands slaughtered thousands of green turtles which lived along the South Coast. Fishing for local consumption and the capture of green and hawksbill turtles continued to be an industry of local importance until the opening of the twentieth century, but the only product from the sea that entered into trade with Cuba during the colonial period was turtle shell.

The fishing industry achieved more than local importance in the early twentieth century, after the opening of fast overnight steamship service between Batabano and Nueva Gerona and the construction of an ice plant on the island. At that time shipments of lobster began to move to Havana. Trade was small because high marketing costs of Isle of Pines lobster made it difficult for the Isle of Pines product to compete with lobster caught by fishermen from ports along the southern shore of Cuba. Until 1942 lobster made up virtually the entire fish trade with Cuba, although sponge fishing achieved a small degree of importance for a number of years after the Spanish-American War. In 1942 the first of two canning factories was opened on the island, and from that year forward the fishing industry grew steadily.

In 1952 there were 551 fishermen registered with the port authority of Nueva Gerona, many of them part-time fishermen. Of these all but twenty-five lived and worked out of the port of Nueva Gerona. The remainder lived on the South Coast in the small Cayman village of Jacksonville, located on Caleta Grande Bay. Isle of Pines

fishermen operated over one hundred vessels, the majority small, motorless, one-masted sloops of less than twenty feet in length. However, there are a number of large motor launches and sailboats of over five tons weight which are being employed in deep sea fishing.

The entire fishing fleet is berthed along Las Casas River in Nueva Gerona, or in Caleta Grande Bay on the South Coast. These two ports have the only commercial facilities for processing or selling the island's fish catch. Of the two ports, Nueva Gerona is the most important, handling all but about one per cent of the total annual catch. The South Coast contributes little to the total value of fish production, since it is all but isolated from the rest of the island.

Over 50 per cent of the total value of the fishing industry is earned from the sale of the Cuban spiny lobster, Panulirus argus. This lobster, a giant clawless sea crayfish similar to the African lobster, is found in great abundance near the cays and along the subterranean coral ridges of the shallow Gulf of Batabano.

The majority of fishermen on the island are engaged in lobstering. Each morning a number of small ships leave Nueva Gerona, where the entire lobster fleet is based, and sail out into the Gulf of Batabano in search of lobster. It is a simple operation for the fishermen to capture them; the boats merely ply along the cays or above the reefs until one of the crew spots a bed. Then, through the use of a long pole called the chapingorro the lobster is netted and brought aboard.

In 1952 the Isle of Pines reported a catch of 944,046 pounds of lobster, worth a total of $125,896, or approximately one-tenth of the total lobster catch of Cuba. All but 5,800 pounds of this catch were marketed outside of the island. Most of the lobsters are packed in boxes and shipped in ice to Havana, where they are either exported to the United States or consumed within the city. Occasionally one of the two local canneries will pack some in tins, but this accounts for only a very small percentage of the total quantity shipped.

Years of overfishing have brought about a decrease in the annual lobster catch since 1952. By the summer of 1956, for the first time, lobster beds began to show signs of exhaustion. This fact has motivated the Cuban Government to restrict lobstering. No lobsters may be taken from March 1 to June 30, the lobster mating season.

The second most important segment of the fishing industry is the bonita. Today there are roughly fifty fishermen engaged in this industry, which began in 1942 when a canning factory was established on the island. Since that time another has been built.

The Isle of Pines is located in a particularly advantageous position in regard to bonita fishing, since it is only a short distance from the bonita fishing areas, which lie just offshore from the South Coast. In 1952 the Isle of Pines fishermen caught 698,605 pounds of fish. The preponderance of the catch has not actually been bonita, although it is canned under that name; rather, it has been blackfish tuna and skipjack. The total value of the catch was

Fig. 32.--Fishing Fleet at berth at Nueva Gerona.

approximately $68,000, or nearly thirty per cent of the total Cuban bonita industry in 1952.

Unlike the lobster industry, the bonita industry has been growing in annual production since the 1952 assessment. It is difficult to obtain statistics, because the owner of the most important canning factory has been reticent about giving any figures. However, his canning factory operated uninterrupted through most of 1957, whereas previously it had been forced to close for long periods during the year for lack of fish. Further, the usual fishing season has been extended until it now is virtually the entire year, whereas formerly it was only seven or eight months.

Every year there is a large annual catch of fish which can be loosely grouped under the classification of pan fish, that is, fish which are sold fresh for preparation for the average Cuban dining table. There are a great many species included in this classification, the most popular being the red-tailed snapper, mutton fish, and grey snapper. Other fish which are taken on the Isle of Pines are the dog snapper and silk snapper, mackerel, and the Nassau grouper. Pan fish of less commercial importance have all been classified under one category, inferior fish. These include grunts, porgies, hardtails, and hardheads, together having a value of only .75 per cent of the total value of fish taken on the island in 1952.

Approximately 150,000 pounds of pan fish were caught in 1952, less than one per cent of the total number caught in Cuba. The majority of these fish are consumed locally, although nearly forty per

cent of the total weight of the catch is packed on ice and sent to Havana for sale. The catching of these fish has usually been in the hands of owners of smaller vessels. Frequently when the lobster, sponge, or bonita fishermen are not employed in their usual work they also will turn to this type of fishing, as there always is a local demand.

In the past sponge fishing occupied an important position in both the Cuban and Isle of Pines economy. Even before the Spanish-American War there were shipments of sponges to Cuba, and for thirty years after the war the industry prospered. In 1939 the sponge blight reached Cuban waters, and since that time it has become increasingly difficult for sponge fishermen to make profitable catches. In 1942 only 3,338 dozen sponges were taken from the Gulf of Batabano by Pinero fishermen. Not only have these fishermen been the victims of the disease which has decimated the sponge beds, but prices for natural sponges have fallen considerably due to competition from synthetic substitutes.

The most important commercial fish taken on the South Coast of the island is the shark. A number of Cayman residents of the little village of Jacksonville have been active for years in this dangerous livelihood. The usual practice in fishing for sharks is to go out in small boats with hook and line, but occasionally nets are employed. Night sharks constitute the most important species taken, but more than ten other species are also caught. The most valuable products the shark yield, in descending order of importance, are liver

oil, liver in brine, skins, and fins. These items are brought to Nueva Gerona once or twice a month by one of the small boats based at Jacksonville. The total value of the shark industry in 1952 was $7,000, and it is doubtful if it has increased any in importance in the interim between then and 1957. This income constitutes one of the most important contributions to the economy of the South Coast.

Today the turtle industry, which once ranked as one of the major sources of income for the island, is only of minor importance. Over the years the green turtle has been relentlessly slaughtered for meat and the hawksbill for tortoise shell until their numbers have been reduced considerably. In 1952 only 5,300 pounds of turtle meat were produced by Isle of Pines fishermen and no shell. Over 60 per cent of the total catch was consumed locally, principally by the inhabitants of Jacksonville. The remainder was sent to Nueva Gerona or to Havana, where it is considered a delicacy. Total value of turtle meat sales in 1952 amounted to $440.

The bullfrog was introduced to the Isle of Pines, just as it was to Cuba, by the Spaniards. Today they thrive in the coastal swamps and Lanier Swamp. Several people on the Isle of Pines have supplemented their income in periods of unemployment by capturing these bullfrogs and selling their legs, which are edible. Production is small today, and consumption is only local. The Cuban people have never included frog's legs in their diet, and there has been a prejudice against eating them. Conceivably, in the future, a market might be found in Havana or in the United States and several people might find full time employment in this industry.

The fishing industry of the Isle of Pines has been seriously handicapped by being separated from the major market areas by the Gulf of Batabano. It has always had to compete with fishing ports along the southern coast of Cuba that have had access to the same fishing areas. Because these ports are much more accessible to Havana than the Isle of Pines is, fresh fish have been able to move to market in only a few hours. Isle of Pines fishermen cannot possibly market their fresh fish so rapidly. Instead they have to laboriously pack the fish into large boxes full of ice in order that they will not spoil on the long boat and overland trip to Havana.

The Isle of Pines fishermen could increase the catch of snapper and grouper readily, but they have been able to capture only a small share of the highly profitable Havana market due to the expense involved in shipping. Today ports such as Batabano are supplying the majority of fresh fish for Havana, while Cienfuegos is able to supply the cities of central Cuba with ease.

In an attempt to alleviate the marketing disadvantage of the Isle of Pines the Cuban Government has constructed an ice plant on the island. Money for this project was granted by the Banco de Fomento (Development Bank). Completed in 1950, the plant is capable of producing 6,000 pounds of ice daily, of freezing 8,000 pounds of fish in the same period, and of providing storage room for 100,000 pounds of fish. It was hoped that the availability of a cheap and plentiful source of ice would facilitate the movement of fresh fish to the mainland. Unfortunately, by 1957 no such trend had developed, and the ice plant has actually operated at a deficit for every year

since it opened. In part this can be attributed to the decrease in lobster production, which, it was hoped, would use much of the plant facilities. However, the increase in the fresh fish industry has failed to materialize due to its inability to compete with the Cuban industry for the Havana market.

The Forestry Industry

The forestry industry of the Isle of Pines has been sporadic. Production of timber and timber products since 1946 has varied from an annual value of $232,900 in 1946 to a low of some $20,000 in 1957.[1] There have been years in the interim between 1946 and 1957 when production figures have shown a temporary increase, but there has been a marked downward trend in the value of production, and the industry has generally contributed less each year to the island's economy.

At one time the island, as its name suggests, had a significant timber resource. The island north of Lanier Swamp was covered by a pine savanna similar to the natural vegetation found in the flatwoods of northern Florida. South of the swamp a thick stand of hardwoods and palms had developed on the limestone plain. Commercially valuable timber such as partridgewood, black olive, Spanish cedar, white oak, Sabicu, mahogany, and several other species of trees were present in marketable stands.

Despite the fact that Spanish naval authorities issued two unfavorable assessments of the island's timber resources, both the

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[1]Monzon and Santos Rio, op. cit., p. 73.

Fig. 33.--Tile factory in Nueva Gerona. This small industry uses marble dust, a bi-product of marble cutting.

Fig. 34.--Pile of wood ready for firing to make charcoal. Scene is on the South Coast.

hardwood and the softwood stands began to be exploited early in its history. The first trees to leave the island were from the hardwoods forests of the southern forest. Before the end of the seventeenth century Jamaican and Cayman Islanders began to fell the valuable mahogany and cedar trees which were then found in abundance throughout the area. This occupation was practiced surreptitiously, since the timber was shipped to Jamaica and the Cayman Islands for domestic construction or for export to England. Timber continued to be removed by these British subjects for two centuries, and it was not actually curtailed by the Spanish authorities until the beginning of the nineteenth century. By that time the British had actually realized a greater profit from the timber resources of the hardwood forest than had the Spanish, and there were few valuable trees left.

The northern pine forests were not exploited as early as the southern hardwoods. Pine was present in sufficient quantities in Pinar del Rio Province to supply the commercial demands of western Cuba throughout the colonial period, and until the beginning of World War II what deficit there was in production was usually made up by imports from the United States and Honduras. The principal use of the Isle of Pines pine during the colonial period was for local construction and for charcoal production. After 1850, the year that regular steamship service was inaugurated between Cuba and the Isle of Pines, a naval stores operation was begun. This industry, which apparently was short lived, tapped 320,000 trees.[2] The only movement

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[2]Wright, Gem of the Caribbean, op. cit., p. 24.

of timber or wood products between the island and Cuba, aside from naval stores, was an occasional shipment of charcoal, tobacco stakes, or crossties for railroads.

After the Spanish-American War, when the island was settled by Americans, several sawmills were established. These mills, usually American owned, were engaged mainly in sawing boards for structural use. The demand for lumber was great because many Americans were building homes, and during this period the drain on the forests was quite heavy. After the end of the American period, exploitation was reduced until the middle of World War II when there was an increase in the price of lumber in Cuba. It has been estimated that in the years of heaviest exploitation, from 1943 to 1947, a minimum of 1,500,000 board feet of pine was removed annually from the forests of the island.[3] This lumbering was almost completely unregulated, and for sheer destructiveness there has never been a period in the history of the island which could be its equal. Today it is rare to find a pine tree with a diameter greater than eight inches, as the lumbermen were absolutely indiscriminate in their choice of trees during the period of heavy exploitation. Not only were they indiscriminate in the size of the tree they felled, but they paid little regard to whose land they were cutting on. Clandestine lumbering during this period made up an important share of the total production. Lumbermen particularly concentrated on the property of absentee

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[3]Monzon and Santos Rio, op. cit., p. 55.

owners who were unaware that their trees were being removed. Even today this practice continues, although at a much more reduced scale than formerly, because of more rigid enforcement of the forestry laws by the Cuban Government.

The hardwood stands in the southern part of the island are now being exploited mainly by charcoal producers. The forest was damaged by a forest fire in 1926. This fire burned for many months and destroyed almost 100,000 acres of timber. Effects of the fire still can be seen throughout the area, and there are no large commercial stands of saw timber present. Only a few cedar or mahogany trees remain from the holocaust. In 1956 it was reported that there was a crew of men working somewhere in this forest felling logs to be used as telephone poles. This information cannot be verified since the operation was one of those clandestine types, logging on land that they had not obtained permission to use.

Table 7 gives the production of timber for six years, between 1946 and 1951. Before 1946 no estimates were made of lumber production, and after 1951 the figures are not available. The totals represent timber that has been removed by official consent, there being no possible way to ascertain the amount of illegal logging.

Today production of timber is almost exclusively for local consumption, and only a relatively small percentage is ever shipped to Cuba. The largest use of timber is in the construction of homes. Although the majority of better class residences of the island are of masonry construction, there still are a number of small frame

TABLE 7

TIMBER PRODUCTION ON THE ISLE OF PINES, 1946 to 1951*

Year	Pine (Board Ft.)	Other Woods (Board Feet)	Charcoal (Sacks)	Firewood (Cords)
1946	1,883,000	223,000	**	**
1947	951,351	154,000	25,220	1,650
1948	443,000	87,000	14,313	702
1949	85,000	--	36,380	125
1950	45,000	40,000	6,567	--
1951	208,000	30,000	20,280	--

*Source: Cuba, Estudio Economico Social de la Isla de Pinos, p. 55.
**No data available.

homes built. Another important use for lumber is in a small container industry which has been established on the island. In 1957 one crate mill was constructing both grapefruit and cucumber crates, but total production could not even approximate the demand for these items during the picking seasons, and heavy imports were necessitated.

Charcoal production has usually been restricted to the South Coast, although occasionally certain farmers north of Lanier Swamp will cut scattered brush and burn enough to supply charcoal for their own use. On the South Coast the situation is ideal for the commercial production of charcoal, as the dense stand of scrub, mainly of the species Plumeria, and the occasional black olive, and partridgewood trees, provide excellent raw materials. Production was light in the

first few years following World War II, barely enough bags of charcoal being produced to satisfy the demand of the island. Since then a commercial crew financed by an Havana company has brought modern equipment to the South Coast and has increased production to the point where Isle of Pines charcoal is being moved to the Havana market. No figures are available for the amount of production.

The charcoal industry seems to have the most promise of any segment of the forestry industry. Production is confined, at present, to the southern hardwood forests where mechanized operations are just beginning. However, not only does the southern forest offer valuable timber for this industry, but the extensive mangrove swamps which border the northern coast also could prove an important source of wood for burning. The red mangrove has been used as a basic raw material for the charcoal industry along the southern coast of Cuba and could be equally as important on the Isle of Pines, if the industry were to expand. Today the main drawback to rapid expansion is the perennial problem of transportation, the existing charcoal producing areas being able to compete more successfully for the important Havana market than the Isle of Pines.

As has been mentioned, the southern forest has been virtually exhausted of timber which could be used for structural use. There still are a few trees with wood valuable for furniture making or construction, but the price of this wood must become considerably higher in Cuba before it would be feasible to cut. Two possible profitable uses of the timber would be as cross-ties for railroads

and as fence posts. There are many trees within the area which are ideally suited for these uses. The fact that there are several deep water harbors along the South Coast of the Isle of Pines would make direct shipments possible between the forest and Cuba, without the necessary transhipment at Nueva Gerona and Batabano. Eventually, with the rapid exhaustion of Cuban forests, the likelihood that this forest will be utilized more completely becomes inevitable.

The Mining Industry

Mining has never been of primary importance in the economy of the Isle of Pines. A number of metallic and nonmetallic mineral deposits found on the island have been worked, but in 1957 there was only one exploited. A small amount of marble is at present being extracted from the two mountain ranges on either side of Nueva Gerona. This operation gives employment to approximately twenty-five people. The total value of mineral production was estimated at $75,000 in 1957. In past years this figure was probably higher, as there were more deposits being worked, but it never has been greater than $200,000 annually. It should not be concluded from these figures that the mineral deposits constitute an unimportant resource. Potentially they are quite valuable and, as will be pointed out, in the future they might occupy a much more prominent position in the economy than they have in the past.

Marble quarrying, the only active mineral industry on the island, is being carried out in a series of deposits at the base of the Sierra de Casas and Sierra de Caballos. Two private companies

and the National Penitentiary maintain operations at these mountains.

The quarrying of marble is not a new industry to the island. Actually it was the first mineral exploited, the first marble being extracted in 1839.[4] In that year the governor of Cuba opened a quarry in the Sierra de Caballos range, brought a steam marble-cutting saw from the United States, and built a dock at Punta Columpo to transport the cut slabs of marble to Cuba. The operation failed in 1849 despite the fact that it used convict labor. The next commercial operation was not begun until 1820 when the Cuban Government opened a quarry on the island. In 1934 this operation was moved to Pinar del Rio Province, near the city of Pinar del Rio, where there is an outcropping of the same Gerona marble formation found on the Isle of Pines. Later, after the National Penitentiary had been opened, quarrying resumed, this time using prison labor. The first private quarry did not begin to produce stone until the mid 1930's, when a small power saw was installed just outside Nueva Gerona. Since World War II a second private marble cutting plant has been opened.

Both private companies are working deposits in the Sierra de Casas range. They cut blocks of marble of from eight to twelve tons with compressed air drills. Once the blocks are dislodged from the bed they are winched onto trucks and carried to one of the cutting plants in Nueva Gerona, where the stone is cut into slabs one inch thick. The process is long and tedious, one saw being able to cut only an inch of stone per hour. At times this has meant that both quarries operated on a twenty-four-hour basis. However, even operating full time, maximum production of either plant seldom reaches more than

Fig. 35.--A marble quarry at the base of the Sierra de Casas.

Fig. 36.--Two marble cutting saws in Nueva Gerona.

forty tons per week. Neither plant has polishing equipment, since it would be too expensive to polish the stone before it is shipped, breakage during shipment being an important item to be considered.

The marble which is cut is generally gray; some marbles are red-stained, white, or varigated in color. Beds are deep, but the quality of the stone is not uniform, some blocks being the equal of the finest Vermont or Italian marbles while others have fissures, or cracks, making them commercially valueless. That the incidence of rejection is high can be seen by the large number of rejected blocks left strewn about the base of the quarries.

Today the two private quarries are supplying the building trades of Havana. Slabs are usually shipped to Batabano, and from there they go by train to the city. The expense incurred in this movement is so great that the demand for Isle of Pines marble has never been large. Even though the combined facilities for cutting marble are small, the industry has rarely operated at peak capacity.

The reason for this situation is directly attributed to the excessive transportation cost, as well as to the lack of uniformity in the grades of marble. It seems inconceivable, but Isle of Pines marble cannot compete with Italian, Belgian, or United States marble in Cuba. Actually, when the Cuban Government constructed the capital building in Havana, the marble used came from Italy rather than from the Isle of Pines.

During the fall of 1957 one of the marble companies, owned by an American, was getting ready to ship stone directly to Miami,

Florida. Slabs had been placed on the wharf in anticipation of the ship's arrival, and it was hoped that a profitable interchange would develop between the island and the United States.

A large gold mine has operated intermittently in the Los Indios area for many years, but it has been closed since 1950. The mine, known as La Delita, has been controlled by a number of different companies, including both American and Canadian ones. At present it is owned by a Canadian firm, the Transcontinental Resource Company. This organization has been reported to have spent $1,500,000 between 1948 and 1950 in an attempt to produce commercial quantities of gold, all to no avail.[5] One shaft has been sunk 450 feet and an elaborate physical plant complete with concentration plant, laboratories, offices, warehouses, and even a village for workers was built. During peak operation 200 men were employed on two work shifts. The ore contains other minerals besides gold, such as silver, lead, antimony, and zinc, these making up a small percentage of metals extracted. One estimate has it that a total of $350,000 worth of ore has been produced since the mine opened.[6]

Reason for failure of the mine has been attributed to the fact that the power plant used to operate compressors and other machinery necessary in mining was inadequate. Furthermore, the ore concentration process was extremely difficult, and the road between the mine and Nueva Gerona was poor, making it costly to move the sacked ore for

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[5]Monzon and Santos Rio, op. cit., p. 66.

[6]Report on Cuba, op. cit., p. 999.

Fig. 37.--The gold mine. This mine is presently abandoned.

Fig. 38.--Sawmill and crate factory near Nueva Gerona.

shipment to the United States.

In 1957 the Cuban Government built a new electric plant within one hundred yards of the mine. This plant, built at a cost of $350,000, has a capacity of 900 kw, ample enough power for the needs of both the island and the mine, if the power plant should open. In addition, by 1957 a connecting road was under construction from the electric plant and mine to a modern paved highway which leads to Nueva Gerona. Conceivably these two improvements would be enough to permit the resumption of mining operations, although in November, 1957 there had been no talk of doing so.

Several small deposits of tungsten are found at Loma Siguanea, a hill on the southwestern side of the island. The most important mineral associated with these deposits is ferberite, an iron-manganese tungstate, but there are also smaller quantities of sheelite that are present in quartz-tourmaline dikes within the layers of schists.[7]

The mine which produced the most tungsten ore was the Lela, owned by the Pan American Tungsten Corporation, an American organization. There are several other mines within the same area, but none has operated since 1941, despite the fact that the prices of tungsten have been high, and it has been regarded as a critical mineral in the United States. Today the main shaft of the Lela mine is filled with water, and the headframe has been destroyed by fire.

Possibly, if the demand for tungsten becomes critical, these

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[7]U.S. Geological Survey, Survey Bulletin 935-D, Tungsten Deposits Isla de Pinos, Cuba (Washington: Government Printing Office, 1944), p. 183.

mines might reopen. Past milling of the ore was inefficient and did not yield the concentrations of ore that modern methods can. Modern improved techniques of grinding and concentration give a much higher recovery. With adequate equipment the tungsten mines might become profitable once more.[8]

Iron deposits have been periodically exploited on the island. The majority of these deposits are small, composed of surface formations of limonite and hematite. One formation of hematite near McKinley was worked out several years ago. The ore was piled into two dumps, later sacked, and moved by steamship to Batabano. Before the operation ceased 4,200 tons were shipped from the island.[9]

Conclusion

Fishing, forestry, and mining are the three extractive industries present on the island. Of these three activities fishing contributes the largest share to the island's economy, and a significant trade has developed with Cuba in canned tuna, lobster, fresh fish, and fish products. Forestry has, in the past, contributed much to the island's economy. Unregulated logging has exhausted the island's forests of choice hardwood and softwood stands, and little marketable timber remains except for wood used in charcoal making. Many minerals are found on the island, several of which have been exploited commercially. Today only marble is being quarried. The gold and tungsten mines have been closed several years ago. Just as

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[8]Paul A. Bundy, "Cuba has Potential Tungsten Mines," Engineering and Mining Journal, Vol. 150, No. 8 (August, 1949), p. 79.

[9]Cuba, Estudio Social de Isla de Pinos, op. cit., p. 68.

in agriculture, the fishing, forestry and mining industries have been deterred from developing into highly profitable activities because of the island's high marketing costs. Today the island is in a position to supply Cuba with greater quantities of fresh fish, charcoal, and marble, but has been restricted because it is unable to compete with Cuba's usual sources of supply.

CHAPTER VII

MANUFACTURING, TRANSPORTATION AND TOURISM

Manufacturing

According to the Census of 1953 there were 373 people engaged in manufacturing, 329 men and 44 women. This is approximately eight per cent of the total work force on the island, a low proportion compared to 20 per cent for the Province of Havana and a national average of 17 per cent. Not only is the percentage low in comparison to those of other areas in Cuba, but also when compared to other categories of employment on the Isle of Pines. For example, 16 per cent of the work force is engaged in services and 64 per cent in agriculture. Clearly, there are few municipios in Cuba where manufacturing industries play such a minor role in the total economy as on the Isle of Pines.

Fish packing industry.--The major manufacturing industry on the island is the packing of fish. In October, 1957, an average month for the fishing industry, approximately 125 people were employed on one eight-hour shift in the island's largest cannery, the only one in operation at that time. The employees were mainly women who packed the fish into cans. Despite the fact that only one plant was in operation at that time, over 50 per cent of the total number of people engaged in manufacturing were employed in fish canning.

The number of workers has varied considerably since 1942, the year that the first cannery was opened. There is a great seasonality of employment within the industry, long layoffs or short working hours being common due to seasonal fluctuations in the supply of fish. However, when fish are plentiful and the boats are able to furnish the canneries with large quantities, two shifts of workers are used and employment at times reaches several hundred. If the supply of fish is slow and irregular, canneries operate part time. When a boatload of fish arrives the larger plant announces the event by blowing a whistle; workers then return to the factory and the fish are processed.

Both of the island's two canneries are located on the Las Casas River in Nueva Gerona. Mariscos del Caribe, the larger, cans 700,000 to 1,000,000 pounds of tuna annually, while Productos de Isla de Pinos rarely has a year in which annual production is over 200,000 pounds. The product of both companies, usually bonita and tuna in oil, but also in tomato paste or hot sauce, is marketed all over Cuba and has a high degree of consumer preference.

There is a small dockside operation known as Compania Pesquera de Cuba Conga that specializes in the packing of lobsters. Lobsters are generally shipped to market live on ice from fishing ports along the southern coast of Cuba. However, Isle of Pines lobsters are usually eviscerated on the dock in Nueva Gerona, and only their tails are shipped. This is necessary, despite the fact that live lobsters are in much greater demand and receive a higher price than lobster

tails, because of the transportation charges incurred in moving any produce from the Isle of Pines. In shipping lobsters, whether alive or only the tail, the average amount of ice needed to preserve them until they reach Havana is a pound of ice for every pound of lobster. One case of lobster tails weighing 125 pounds equals seven boxes of live lobster weighing a total of 420 pounds; hence the expense of buying the additional ice needed to ship live lobsters and of paying the added freight render shipment of live lobsters uneconomical.

Citrus and vegetable packing.--Processing of farm products for market employs as high as 300 people during the harvest season. This occupation, just as the fish canning industry, is based on raw materials of local origin. The two most important products of the island to be packed are cucumbers and grapefruit, with an occasional crop of other winter vegetables.

There are seven citrus packing plants on the island. The majority of these belong to citrus growers and are used to pack fruit from their groves. However, several also handle the produce of smaller groves for a fixed rate per case of fruit processed. In addition to these privately owned packing houses, there is one large public plant on the outskirts of Nueva Gerona, capable of handling large quantities of fruit.

From the second week in August until the second or third week in October packers are engaged in processing grapefruit for the United States market. Since this market demands that the fruit be artificially colored, washed, graded for size, individually wrapped

Fig. 39.--Mariscos del Caribe. This tuna canning factory employed over 125 people in season.

Fig. 40.--Produce packing plant near Nueva Gerona.

in tissue, and carefully packed for the long trip to the United States, at times approximately one hundred workers may be employed. After the export season has ended the grapefruit packers are able to reduce their plant personnel greatly as they do not have to maintain such high standards in the appearance and quality of fruit supplied to the Cuban market. The fruit is moved in bulk; only rarely is it graded, washed or artificially colored.

Cucumber growers frequently utilize the same physical facilities as the grapefruit growers. This is possible because the important citrus season ends before the cucumber season begins. Consequently, several cucumber growers have made arrangements with the owners of citrus packing plants for use of their facilities. Others have established their own plants, usually of a temporary nature, while a few use the facilities provided at the public packing plant which handles vegetables as well as grapefruit.

The export of cucumbers has been of much higher volume than grapefruit for the past five years. In the 1955-56 growing season the island's packers shipped approximately 250,000 bushels of cucumbers to the United States. In order to ship for export the cucumber growers must follow as careful a packing procedure as the grapefruit growers. Each cucumber is brushed, washed, dried, coated with paraffin wax, graded, and packed into crates. Most of the operation has to be done by hand, and labor demands for cucumber packing are high. During the height of a 200,000 bushel season, cucumber growers may employ 200 workers in their plants, often on two shifts.

The container industry.--The major use of the small amount of timber removed from the island's depleted forests is at present in the container industry. The manufacture of containers is not a new industry on the island. During the era of strong American influence all the vegetable and fruit containers used in shipping were made on the island. At that time there were crate factories located in Nueva Gerona, Santa Fe, Los Indios, and McKinley, all using local pine and jucaro.

After the American period the citrus industry of the island began to purchase both field crates and packing boxes from Florida mills, transporting them to the island on a regularly scheduled boat that is still in operation between the island and Tampa, Florida. The price of shipping crates delivered is usually fifty-two cents apiece. Currently, approximately 200,000 crates are being imported annually, mainly for use in the cucumber industry.

Since 1950 several small mills on the island have begun to produce boxes for use in the grapefruit and cucumber industries. These mills are less efficient than the large commercial container companies in Florida, and their production has been able to meet only a fraction of the total demand for containers on the island. At present it is doubtful if production is 60,000 crates annually. The Isle of Pines container industry cannot compete with the United States industry despite the availability of cheap labor, local wood, and proximity to the demand. In October, 1957 a small plant in Nueva Gerona was producing crates, where approximately fifteen people were employed.

Miscellaneous manufacturing.--The island has several types of manufacturing which can be regarded as being typically consumer-oriented. There is a small printing shop capable of satisfying most of the demands of the community. Also there is a bakery which produces, in addition to the Cuban bread, United States type white bread which is wrapped in cellophane under the brand name "Tio Sam" (Uncle Sam). There are several sheet metal shops, one well equipped machine shop, and two commercial ice plants. In addition, there is a small amount of household industry throughout the island, particularly in women's apparel.

Manufacturing on the Isle of Pines has never been highly developed. The number of material-oriented industries are few due to lack of materials to base industry upon, while consumer-oriented industries are small because of the low number of inhabitants on the island. The largest single manufacturing activity is the canning of tuna. Two canning plants are located in Nueva Gerona, one employing over one hundred people when in operation. Other plants based on local materials are several citrus and vegetable packing plants which open during the citrus and vegetable seasons and process grapefruit and cucumbers for export. Another small industry is the making of crates. Consumer-oriented manufacturing is what one normally finds in sparsely populated rural areas. In Nueva Gerona, the commercial center of the island, there is a print ship, two ice plants, a bakery, and several sheet metal shops which satisfy local demand.

Fig. 41.--Airview of the mouth of the Las Casas River. Dredge in foreground is deepening the channel to Nueva Gerona.

Fig. 42.--The steamship Pinero at berth in Nueva Gerona for repairs.

Transportation

The island's isolation from Cuba has been the most important factor in accounting for the slow economic development. In the study of the various facets of the economy, it has been seen that in the majority of cases the most powerful deterrent to maximal development has been the position of the Isle of Pines with reference to large domestic and world markets. The grapefruit industry has suffered because it cannot compete with Florida groves, or even with groves in the Havana Province. The winter cucumber industry has begun to migrate to Cuba due to the additional freight rates which Isle of Pines cucumbers incur in movement from Nueva Gerona to Havana. The fresh fish catch has difficulty being marketed in Havana, and lobsters are extemely expensive to move to market. Mineral production has also been deterred by the inadequate transportation facilities; this is especially true of marble quarrying, which has suffered greatly.

The Cuban Government is aware of the problems that have beset the Isle of Pines. They have attempted to alleviate some of the pressing economic difficulties by several public works projects. Since 1950 the government has spent approximately $250,000 in an attempt to deepen the channel into the port of Nueva Gerona to eighteen feet. Also, to stimulate tourism, the island was declared a Tourist and Free Port Zone in 1955. Other projects accomplished to ameliorate depressed conditions on the island have been a new electric plant, a modern ice plant, a number of new roads, and the improvement of many miles of older roads.

A highly imaginative plan, though at present unfeasible because of the tremendous expense, is to link Cuba with the Isle of Pines by a causeway over the shallow Gulf of Batabano. No matter what the scope of the plans for the island have been or are at this time, the preponderance are attempts to improve the island's position with regard to the marketing of its products.

Highway transportation.--The road system of the Isle of Pines was barely rudimentary during the colonial period. Only one maintained road, a dirt trail between Santa Fe and Nueva Gerona, existed. After the conclusion of the Spanish-American War this road was asphalted, but it continued as the only government-maintained road on the island for a number of years more.

Despite the lack of government enthusiasm in the development of the interior transportation, residents of the Isle of Pines had little difficulty in maintaining adequate communications. The physical qualities of the island's surface is such that a road may be laid with little grading or surfacing. The danger of vehicles becoming mired in mud is not too great, even during the rainy season, since the Mal Pais soils of the northern part of the island are well drained and offer a firm base even for heavy trucks. During the American period a great number of roads were laid throughout the northern barrios with private capital, particularly money put up by the land companies. Even today there is an incalculable number of these roads that meander over the landscape, many terminating at some abandoned American homestead or at the property of a small-scale

Cayman or Cuban farmer.

In 1941 there were barely fifty miles of government maintained roads on the island, only fourteen miles paved, but by 1957 there were well over one hundred miles of roads, over fifty miles of them paved. Most of this improvement has been done since 1950, when the government took an interest in developing adequate interior communications on the island. At that time work was begun paving an old road which ran between Nueva Gerona and Santa Fe.

Since work has been completed on this road, an extension, the Siguanea Road, has been built linking Santa Barbara to Loma Siguanea and Playa Roja. This highway, which is completely paved, connects several of the island's largest estates with Nueva Gerona. In addition to these estates it also passes the home that President Fulgencio Batista of Cuba maintains on the island, as well as a new projected hotel and subdivision at Playa Roja. A tributary road to this highway is at present under construction which will link the new power plant and abandoned gold mine to the Siguanea Road, and thence to Nueva Gerona.

On the eastern side of the island there are several roads in the process of being improved. One, from Santa Fe to Jucaro, was being graded with a layer of crushed marble in the fall of 1957 in preparation for oiling. Eventually this road is expected to be paved to the old road between Nueva Gerona and Santa Fe. The incentive for such an active program in this section of the island can be partially attributed to the activities of the real estate brokers

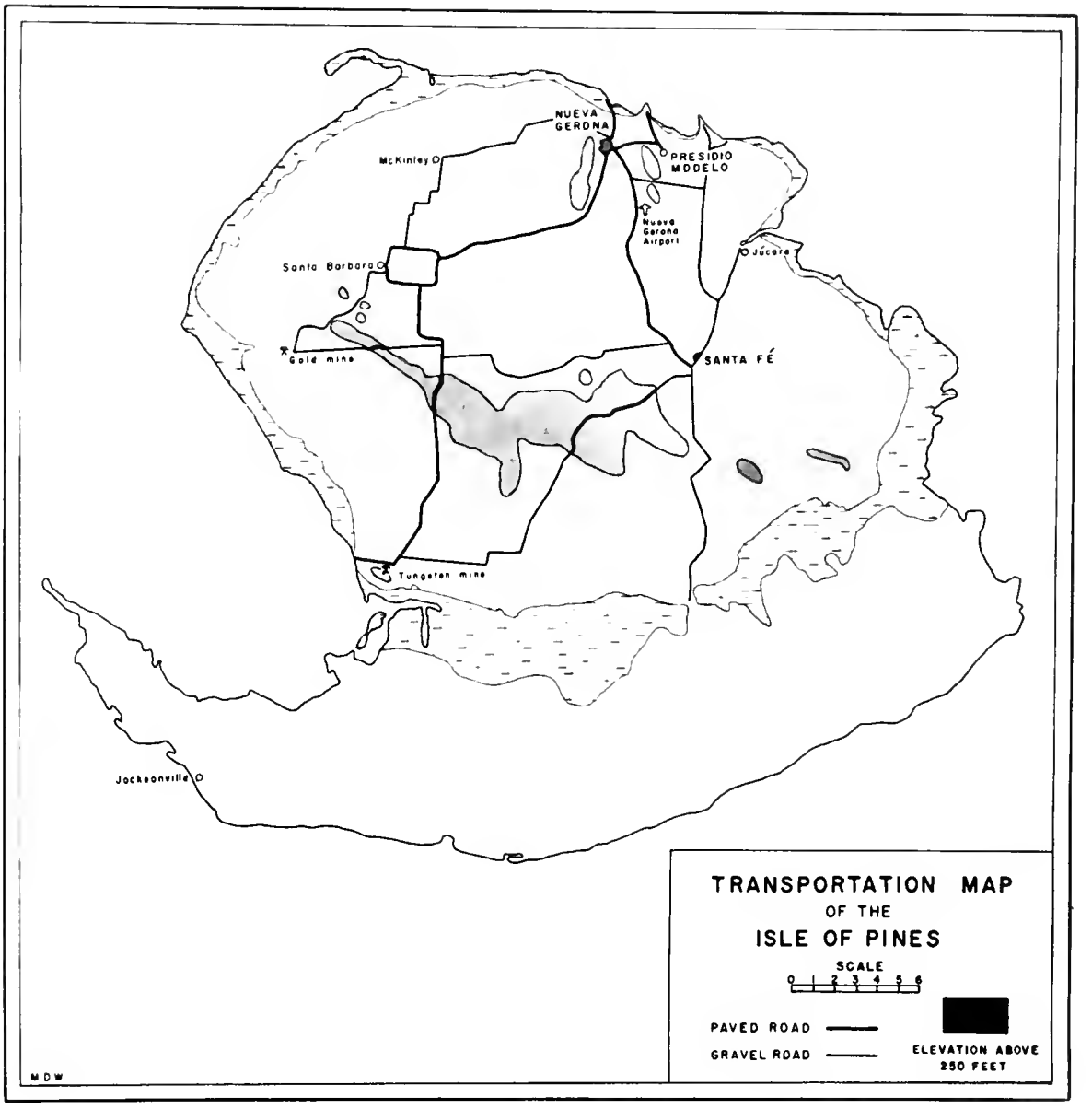
NUEVA GERONA
McKinley
PRESIDIO MODELO
Nueva Gerona Airport
Santa Barbara
Júcaro
Gold mine
SANTA FÉ
Tungsten mine
Jacksonville
TRANSPORTATION MAP
OF THE
ISLE OF PINES
SCALE
0 1 2 3 4 5 6
PAVED ROAD
GRAVEL ROAD
ELEVATION ABOVE 250 FEET
M D W

Fig. 43

who have opened several projects in the area. Realizing that good access roads to their subdivisions increase their attraction and thus their value, they have been active in inducing road construction in this sector.

South of Santa Fe an old trail, which ran to Pasarita, the narrow tongue of the limestone plain that separates the two parts of Lanier Swamp, has been graded. Road construction has been terminated at the boundary of Punta del Este barrio. Technically it would not be a difficult engineering problem to extend the road all the way to the South Coast. If this were possible it unquestionably would have a salubrious effect on the economy, as not only is the South Coast a potential tourist attraction, but it has several deep-water harbors.

Distances between populated places on the island are so great that it is unusual to see people using horses or oxen as means of transportation. The majority of people travel by private automobile or use one of the two buses that serve Nueva Gerona, Santa Fe, and Santa Barbara. As public transportation is poor, service being infrequent, many of the inhabitants who do not have automobiles or motorcycles resort to hitch-hiking. A camaraderie exists among the residents of the Isle of Pines which makes it almost mandatory for a motorist to stop and "give a lift" to any pedestrian walking along the side of the road.

Air transportation.--The Isle of Pines has been served since 1948 by a regularly scheduled airline. Aerovia "Q" is a small Cuban line that has service between Key West and Havana as well as Havana

Fig. 44.--A new road near Santa Fe ready to be oiled. Road material is crushed marble.

Fig. 45.--New motel recently completed in Santa Fe.

and the Isle of Pines, operates a morning and evening flight daily. The island is also served by a daily flight of the Cuban Military Air Transport Service; and periodically, Cuba Aeropostal, a cargo airline, will make a flight.

There is only one commercial airport on the island, a gravel strip approximately five miles south of Nueva Gerona, but there are several grass airstrips in various parts of the island capable of handling small private craft. There is a strip near Nueva Gerona, one near Santa Fe, a third at Jacksonville, and a fourth at Siguanea.

For the past two season several growers have utilized air transportation for shipping cucumbers to the United States. By employing air service these growers felt that they could decrease spoilage because of the speed with which the vegetables would be delivered. Other savings could accrue by the lessening of danger of a possible drop in prices occurring between the time the produce left the island and reached the market. Both Aerovias "Q" and Cuba Aereopostal have been employed as carriers, but to date each attempt to use air transportation has proved unprofitable. One of the principal cattlemen has declared that he would be willing to try moving sides of beef by refrigerated airplanes when his herd reaches a size where he can begin to seek a market outside of the island. This statement appears to have been made more in protest against the inadequacy and inefficiency of existent surface transportation facilities rather than because of any savings that might be accrued by air transport. It is doubtful if air transportation could compete

with surface transportation in the movement of meat from the island.

Currently most of the passenger traffic to and from the island utilizes the airlines. With the increase in tourism on the island the number of passengers using the line has risen steadily and now, on weekends, occasionally three flights are made to and from the island. However, the majority of traffic continues to be composed of residents of the island who are travelling for business or pleasure, or Cubans who come to the island for business purposes. It is not uncommon for inhabitants of the Isle of Pines to travel to Havana in the morning and return to the island on the evening flight.

The rapidly increasing American population on the island is trying to convince an airline to commence direct flights between Nueva Gerona and Miami, Florida. The inauguration of such a flight would indubitably stimulate the growth of tourism. Cubana Airlines has been approached to initiate such a service. However, the island neither has the appeal at present to attract profitable payloads of passengers from Miami, nor the air terminal to handle the four motored Cubana planes.

Water transportation.--Ships have always been the prime mover of freight to and from the Isle of Pines. Furthermore, until 1948, water transportation was the only means by which people could enter or leave the island. In 1948 the first regular air service was inaugurated between Havana and the Isle of Pines, and since then it has become the largest carrier of passengers.

In the early colonial period boat service was very irregular,

and only periodically would fishing boats from Batabano or one of the other ports on the southern coast of Cuba use the island as a port of call. What little trade the island had with Cuba was forced to leave the island via these ships or charter vessels hired by cattlemen on the island to transport their cattle, beef, or hides to Cuba. In 1850 the first regular steamship service was established between Batabano and Jucaro, a small port on the Jucaro River. Until the Spanish-American War this was the only vessel which had a regular connection with Cuba, and the island was completely dependent on it for communications.

After the Spanish-American War, during the period of American influence on the island, an American concern took over operation of this service and put on two small steamships. Ships of this company originally docked at Jucaro; but by 1923 port facilities had been developed at Nueva Gerona and boats began to dock there. In addition to this American concern, called the Mills Steamship Company, there was a scheduled schooner service which operated briefly between Los Indios and Mobile, Alabama, and another service between Nueva Gerona and the Cayman Islands. The service between the Cayman Islands and the Isle of Pines was begun in response to the migration of Cayman Islanders to the island during the early part of the twentieth century. Aside from these lines that regularly called on the island, tramp steamers carrying farm machinery, automobiles, food products, fertilizers, and other farm supplies occasionally arrived from Tampa, Florida.

At the present time the major shipping concern serving the island is the Isle of Pines Steamship Company, which took over the old Mills Company after the American period, and continues to operate between Batabano and Nueva Gerona. This company operates three vessels, the Pinero, the Sarasota, and the Mills, all antiquated ships from the early twentieth century. Service is daily; one ship leaves for the island while the other heads for Batabano, and the third remains idle. The capacity of these ships is small. The largest vessel, the Pinero, has a one hundred-ton capacity, while the other two have eighty-ton capacities. Despite such a small carrying capacity, these three ships carry the bulk of all freight to and from the island.

The average freight which arrives on the island is about one thousand tons each month throughout the year. However, the freight that leaves the island, almost twice the tonnage of that which arrives, fluctuates greatly. In the fruit and vegetable export season, August through April, tonnage shipped may surpass five thousand tons per month. During the height of the season all three ships will be in operation.

During the export season the strain on the boats as well as on the port facilities is great. There have been widespread complaints among the island's growers that they are being overcharged by the steamship company for what they feel is inefficient service at the time they most need good service. Dock facilities actually are poor on the island, all stevedoring being done by hand. This slow and

tedious process of loading the boat often causes excessive damage to the produce which mechanical loading would avoid. Also, during these periods, it is difficult for the ships to maintain regular schedules. There have been occasions when produce sent from the island has missed the boat train to Havana after the ship had docked at Batabano, or the produce was put into sealed freight cars without refrigeration and allowed to spoil.[1]

In addition to the steamship service between Nueva Gerona and Batabano there is a regularly scheduled boat service between the island and Tampa, Florida. This ship, the Caravelle, calls at the island once every two weeks bringing canned goods, fertilizers, automobiles, and a variety of other products. Since the island has become a free port this ship has increased the amount of freight brought to the island greatly, the demand for duty-free American products being large.

The major deterrent to water transportation has been the shallow depth of the water between Batabano and Nueva Gerona. The Gulf is so shallow that ships have to take a circuitous route to reach the island to avoid the shoals half way out. At present only small vessels of shallow draft are being used in the maritime trade, but since the approaches to Nueva Gerona have been dredged to a depth of eighteen feet it is possible for ships which draw more water and are of larger tonnage to enter. Conceivably this may mean that large ships can be induced to make the trip from Florida to the island during the grapefruit and winter vegetable season, and thus help

alleviate the island's major handicap to development, excessive marketing expenses. Perhaps this might be the panacea that would arrest the present trend of decreasing grapefruit and cucumber exports. Isle of Pines growers have been heartened by the news that a regular boat service between Miami and Nueva Gerona would be initiated in November, 1957. At the time this news was announced one marble quarry began to make plans to ship directly to Miami. Whether the grapefruit and cucumber growers will utilize this service is not known.

Conclusion.--External transportation has been the chronic problem of the island since the time of first colonial settlement. The shallow Gulf of Batabano has prevented ships of large tonnage from stopping at the island, making it impossible to move large shipments of fruit and vegetables directly to the United States. The existing connections with the United States are two small motor vessels which link Nueva Gerona, the port for the Isle of Pines, with Tampa and Miami. The Isle of Pines Steamship Company, operating three antiquated steamships between Batabano, Cuba and Nueva Gerona, carry the bulk of the freight to and from the island. During the height of the cucumber season these ships have proven inadequate to handle the increased freight, and there is considerable complaint among the island's growers as to service. In addition to water connection with Cuba, the island also has a twice daily air connection between Nueva Gerona and Havana.

Internal transportation on the island is excellent, considering

the island's low density of population. There are more than one hundred miles of maintained highways, forty miles of which are paved. Aside from this network of roads the gravel surface of the northern plain has permitted a great number of motorable trails to be laid, and it is possible to travel with comparative ease almost anywhere north of Lanier Swamp.

The Tourist Industry

The recreational resources of the Isle of Pines have been exploited for over a century. The first attempt at developing a tourist industry was in the middle of the nineteenth century, when the springs located at Santa Fe began to attract Cubans and Americans because of their reputed medicinal waters. Two small hotels operated at the site of the springs throughout the remainder of the colonial period. During the American period, aside from the attraction of the medicinal springs, Americans were drawn to the island during the winter due to the mild climate. When the American period came to a close, interest in developing the tourist industry slackened, and the number of visitors who arrived remained small until 1948, the majority arriving simply to enjoy the spring waters.

Interest in tourism was reawakened in 1948 when the first regular air service was begun between Havana and Nueva Gerona. With the inauguration of this service the long and often uncomfortable boat trip from Batabano could be avoided by travelers. At that time the island's more progressive businessmen began to cast about for tourist attractions which the island could capitalize on. The Cuban

Government assisted them in their efforts, for in 1955 they declared the island a free port, making it possible for the island's importers to withdraw merchandise from customs for local consumption without the payment of duties.

It is possible that the island's status as a free port has had more to do with prompting tourism than any other single factor. Each year since the announcement was made of its new status, an increasing number of Cubans have arrived to take advantage of the duty free liquors, perfumes, jewelry, and other luxury items. Today there are a number of stores which have sections devoted to duty free items introduced into the island, and one store is specializing exclusively in these items.

Salt water sport fishing is excellent in the waters off the island, and it is possible to catch bonefish, tarpon, marlins, snook, and many other game fish. Since 1955 many Americans have started to come to the island during the winter to take advantage of the good fishing. Today there is one sport fishing camp on the Jucaro River owned by an American, and there are at least three charter fishing vessels in Nueva Gerona.

At present there are two tourist hotels on the island, one in Nueva Gerona, and the other in Santa Fe. The hotel in Santa Fe, in addition to providing rooms, has what is known as the Physiotherapy Institute. This is a building equipped with all the latest facilities for treating physical ailments by water and sun. There are several new motels on the island that have been completed since 1957, and

several more are projected. In addition there are several guest ranches in the rural districts of the island.

CHAPTER VIII

SUMMARY

The Isle of Pines has been settled by Europeans for over 450 years. In this long period, despite the fact that it is located near Cuba's highest concentration of people and has an area of 1,181 square miles, it has grown slowly in population. By 1785 less than 150 people resided on the island, and in 1899 this number had risen to only 3,199. Since 1899, growth has continued to be slow, and at the present time there are no more than 11,000 inhabitants, 2,000 of whom are prisoners interned in the National Penitentiary, which is located on the island.

Until the nineteenth century there was almost a complete lack of interest on the part of the Spanish Government to initiate any economic activity or of the absentee landowners to stimulate agriculture. It was completely neglected by the Spanish Government due to the fact that it was considered of such little value as to be unworthy of protection, while the landowners generally possessed more valuable land in Cuba to which they directed their capital and attention. In this period the cattle population of the island multiplied, but there was little trade with Cuba because of the expense of moving the animals from the island to market.

At the time when the island was hopelessly neglected by the government and the absentee landowners, pirates and smugglers began

using the South Coast as a base of operations in their attacks on Spanish shipping in the Caribbean. Their numbers never were great, but they frequently provisioned their ships by killing the cattle found on the North Coast. Hence, the permanent residents of the island were often placed in danger during these visits. As a result the absentee landowners had much difficulty in attracting laborers from Cuba to settle on their land.

In 1829 the Spanish Government founded Queen Amalia Colony near Nueva Gerona. The colony was created to promote development of the island, but proved uninviting, and much of its land was never settled. However, in establishing the colony the government sent troops to the island to clear it of the lawless element. After this was completed, movement of people from Cuba did actually increase. The people who were attracted were mainly landless farmers from Havana and Pinar del Rio Provinces who squatted on the large idle estates of the absentee landowners. During this period several unsuccessful attempts were made to initiate commercial agricultural activity, but with little success. The low fertility of the soil prevented sugar cane production; tobacco grown on the island could not compete with that of Cuba, except during several years of the Cuban Civil War when the Cuban areas were not able to produce. Cattle continued to dominate the trade with Cuba, although during the nineteenth century forest products found their way to the markets in Cuba.

At the close of the Spanish-American War a number of Americans

arrived on the island to take up land. These people felt that the island had been annexed by the United States and supported their claim by making reference to two ambiguous clauses of the Treaty of Paris. Eventually American land companies were formed and by 1910 these companies had succeeded in purchasing almost nine-tenths of the property on the island. This land was eventually subdivided and sold; at one time more than 10,000 Americans owned land on the island, the majority in ten to forty acre tracts.

The foreign-born population of the island increased rapidly during the American period, which continued until approximately 1925. At times there were well over one thousand Americans residing on the island. Also, the group of Americans attracted several other English speaking groups. The majority of these people was from the British colony, the Cayman Islands, located two hundred miles south of the Isle of Pines. Eventually almost one thousand Cayman Islanders immigrated because of the lack of economic opportunity at home. On the Isle of Pines they supplied the demand of American farmers for English-speaking laborers, while harboring the hope of eventually acquiring land of their own.

It was during this period of American settlement that agriculture on the island began to develop commercially. Despite the low fertility of the soil and the difficulty the island's farmers had in competing with other growing areas, many Americans who entered farming began to raise citrus, particularly grapefruit. In addition to grapefruit, a variety of winter vegetables was also grown, including

eggplant, peppers, and cucumbers. Produce was exported to the United States, especially in the months of September through March.

The development of this highly commercial agricultural economy cannot be attributed to any unique asset of the island's physical environment or its position, for Cuba has always provided a better environment and location for citriculture and vegetable production than the Isle of Pines. However, the export of grapefruit rose steadily, and the island also produced several thousand bushels of winter vegetables annually which were also shipped to the United States.

The principal reason for this export was the persistency of the American farmers who, at that time, controlled most of the agriculture on the island. Through large investments of capital and energy they were able to surmount the many natural problems associated with agricultural production there.

In 1925 a treaty was ratified between the United States and Cuba which recognized Cuban sovereignty of the island. Although this did not promote a mass emigration of Americans from the island, it did cause many to leave. After 1925, until the conclusion of World War II, the island was economically depressed, land values decreased and agricultural production declined. Grapefruit and winter vegetable production continued, still largely in the hands of the few remaining Americans, but production was considerably smaller than in earlier years. During this period many squatters reoccupied the land and lived a hand to mouth existence. The only public works of any

magnitude was the construction of the National Penitentiary (Predisio Modelo), which began in 1925. This brought several hundred civil servants to the island, and the large government payroll actually augmented the island's economy greatly.

Today the principal occupation of the people continues to be agriculture. However, the grapefruit industry has continued to decline. Growers have found it increasingly difficult to compete with American grapefruit for the United States market. This has been due to the high marketing costs of Isle of Pines fruit as well as artificial restrictions such as tariff barriers and high quality standards for fruit imported into the United States. Furthermore, Isle of Pines fruit has not been able to compete with Cuban grapefruit for the domestic market because of the excessive marketing costs. Cucumbers, which have usually been the major winter vegetable exported to the United States, have enjoyed a rapid increase in production since 1948. In 1948 several Americans arrived on the island, attracted by the island's former reputation as being a cucumber center, and the fact that English is commonly used there. These growers commenced contracting local farmers for cucumbers to be shipped to the United States, or actually began to farm themselves. Exports rose rapidly for a number of years, but by the 1956-57 season growers were making low profits, and many moved their operations to Cuba, which during the 1957-58 season accounted for most of the cucumber exports to the United States. The loss of both the grapefruit and cucumber markets has motivated many of the larger farmers to seek other outlets in

agriculture. Livestock raising has again come into prominence, and several large herds are being developed in the hopes of eventually initiating trade in beef with Cuba as well as foreign countries.

Fishing, forestry, and mining have been activities of secondary importance to the island's economy. Fishing, the island's second major industry, has been restricted by the island's inability to market its fish in the metropolitan areas of Cuba. Fishermen from Cuban ports are able to supply the demand more cheaply than those from the Isle of Pines. However, the island is one of Cuba's largest suppliers of lobster, both for domestic consumption and export. Also, two tuna packing plants are located on the island, which supply almost thirty per cent of the Cuban demand.

Forestry was of much greater importance in the past than it is today. At the present time there are barely enough marketable stands of timber to supply local building needs as well as the demands of a small crate mill located at Nueva Gerona. Charcoal making, which at present is mainly for local consumption, offers a possibility for the future, but currently the island is unable to supply the Cuban market because it is not able to compete well with other Cuban producers.

Deposits of gold, tungsten, iron, and marble are being exploited commercially. Just as in the case of the other economic activities on the island, mining and quarrying have been restricted because of excessive transportation costs. The gold and tungsten mines were forced to close because the ores mined were not able to

compete with other sources of ore used by the United States due to high shipping costs. Although marble is being quarried, the building trades of Cuba often can buy United States, Belgian, or Italian marble cheaper than that of the Isle of Pines.

Manufacturing on the Isle of Pines has never played a major role in its economy. The island has had few materials to base a material-oriented industry upon, and consumer-oriented industries are small due to the sparsity of population. The tuna canning industry is the largest employer of personnel, over one hundred people being employed in the largest cannery. Other plants which are based on local material are a number of citrus and vegetable packing plants engaged in processing fruit and vegetable packing plants engaged in processing fruit and vegetables for export, and a small crate mill. Consumer-oriented manufacturing is small. There are two ice plants, a bakery, print shop, and several sheet metal shops which are capable of satisfying local demand.

The island has been plagued with a transportation problem since the colonial period. The shallow Gulf of Batabano has prevented large ships from entering Nueva Gerona. This has meant that it has been difficult for Isle of Pines citrus and vegetable growers to ship directly to the United States. The steamship company which handles the majority of freight operates three antiquated vessels between Batabano, Cuba and Nueva Gerona. Normally the service is adequate for the island's limited needs, but in times of heavy cucumber movement, facilities are over-taxed. This inadequacy of

service during the period of greatest need has caused much damage to vegetables in transit to the United States, a fact that has caused vociferous complaints among the island's vegetable growers.

At the present time the Isle of Pines is in a period of economic transition. Cucumber growers are beginning to abandon the island in favor of better growing areas in Cuba. Grapefruit growers are slowly allowing their groves to fall into disuse, and they are doing little replanting. In an effort to seek new means of support some of the major growers have begun to develop their herds of cattle. The government has also entered into the problem by dredging the channel to Nueva Gerona to a depth of 18 feet in order to permit larger ships to enter, by constructing an ice plant to help in the movement of fresh fish and lobsters to Cuba, by declaring the island a free port for foreign goods, and by exempting the Isle of Pines from the Cuban cattle export embargo.

The fact that the island was created a free port has served as a stimulus to tourism on the island. In 1957 several thousand people, mainly Cubans, but also including a number of Americans, visited the island. There they took advantage of bargains in liquor, perfumes, jewelry, and other imports. Aside from this attraction the island also has mineral springs which are reputed to be beneficial to one's health, and also has excellent hunting and sports fishing.

What the future of the Isle of Pines will be is difficult to ascertain. Although during the twentieth century millions of dollars have been invested by Americans and Cubans in grapefruit and winter

vegetable production, neither activity has truly been a resounding success. Natural conditions and the island's geographical position have continually conspired to prevent it from developing a permanently profitable agricultural economy. Livestock is believed by some to offer a solution, but in the past this activity was not successful, and it is questionable if the island's poor soil can support larger herds of cattle than at present. A brief renewed interest of Americans in property has temporarily subsided due to the Civil War in Cuba, and it is difficult to prophesy if interest will continue once political conditions become more stable. One thing seems clear, under present day economic conditions it is doubtful if the island will be able to support a much larger population than it has at the present time.

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The author was born in Chicago, Illinois, August 1, 1930. He received his primary and secondary school education at Todd School, Woodstock, Illinois, graduating in June, 1947. His undergraduate work was accomplished at the University of Illinois, Urbana, Illinois, where he was awarded the degree of Bachelor of Science in June, 1951.

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